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ABSTRACT

This collection of papers from the Summer Institute of Linguistics contains the following articles: (1) "Texmelucan Suprasegmental Phonology," by C. H. Speck; (2) "Some Discourse Features in Siberian Yupik Eskimo," by D. C. and M. R. Shinen; (3) "The Particle t'ah in Slavey Discourse," by C. Harrison and V. Monus; (4) "The Point-Line Dimension in Indonesian," by H. Bombang Kaswanti Purwo; (5) "On Zuni 'Passives'," by C. D. Cook and D. G. Frantz; (6) "The Modalis Case in Inupiat," by W. Seiler; (7) "Goal Advancement in Southern Tiwa," by B. Allen; (8) "Notes on Diuxi Mixtec," by J. P. Daly; and (9) "Aspects of Seri Phonology," by S. A. Marlett. Each of these papers is based on data collected in field work and contains significant amounts of data for illustrative purposes. Nine languages are represented in the papers; eight of them are American Indian languages and one is Indonesian. (Author/AMH)



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# PREFACE

In this twenty-second volume of the Work Papers of the Summer Institute of Linguistics at the University of North Dakota there appear nine working papers written by staff and advanced students. Comments are invited on these reports of work in progress inasmuch as the authors may wish to revise and publish at a later date.

Each of the papers is based on data collected in field work and contains significant amounts of data for illustrative purposes. Nine languages are represented in the nine papers with eight of them being American Indian languages. Two papers are on Eskimo languages, two on Otomanguean languages, one on an Athapaskan language, one on a Pueblo language, one on a Hokan language, and one on Zuni. The ninth paper discusses semantic distinctions in certain pairs of forms in the referential system of Indonesian. The Central Yupik Eskimo paper gives a tentative analysis of some features of narrative discourse, including four discourse markers. The paper on Iñupiat Eskimo demonstrates the use of the modalis case, one of six postpositions. This paper utilizes the framework of Relational Grammar, as do the two papers on Zuni "passives" and goal advancement in Southern Tiwa. The Hokan paper is a reanalysis and clarification of certain phonological phenomena in Seri. The first Otomanguean paper is one chapter out of the author's Master Thesis which deals with the suprasegmental phonology of Texmelucan Zapotec in general and the tone system in particular. The other Otomanguean paper is a reanalysis of the tone system of Diuxi Mixtec which demonstrates how different theoretical perspectives lead to radically different analyses.

Special thanks is due to all the SIL staff members who, although already very busy with other staff duties, took time to read and comment on pre-final drafts of a number of the papers or to work long hours typing and proofreading the final copy. Charles Speck deserves special mention for having read and commented on most of the papers. Thanks are also due to my wife, Margaret, who oversaw the production of the volume.

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# TEXMELUCAN ZAPOTEC SUPRASEGMENTAL PHONOLOGY[1]

Charles H. Speck

0. Introduction
1. Phonological Perturbation
   1.1 Tone Rules
   1.2 Tone Processes
2. Grammatical Perturbation
3. Laryngealization
4. The Effect of Grammatical Perturbation and Laryngealization on the Tone Lowering Process
5. Stress Placement

0. Speaking of general characteristics of tone languages, William S-Y-Wang (1967) points out some basic differences between the types of tone found in language areas of the world. Among other things, he notes that for some languages tone functions primarily to make lexical distinctions with the Sino Tibetan family being cited as examples of this type. For other languages tone functions primarily on the grammatical level. Otomanguean languages are cited as examples of this type. In light of this fact, it is not surprising that two types of tone perturbation need to be distinguished in Texmelucan Zapotec, hereafter referred to as TZ.[2] The first type I will call Phonological Perturbation. This type consists of rules and processes operating in a phonological environment. The second type I will call Grammatical Perturbation. This type consists of phonological rules applying in grammatical environments and will be ordered along with the other syntactico-phonological rules. I will discuss the two types of perturbation in their respective order. I will then move on to a discussion of laryngealization and stress.

1. The four phonemic tones of TZ are high, falling, mid and low. These are distinguished by the features [T hi] and [T low]. High tone is [+T hi, -T low], falling tone is [+T hi, +T low], mid tone is [-T hi, -T low] and low tone is [-T hi, +T low]. All four tones contrast on syllables which are [-lar, - check]. Only mid tone and low tone contrast on syllables which are [+lar]. Only high tone and low tone contrast on syllables which are [+check].

| | | | |
|---|---|---|---|
| táz | *cup* | gá'l | *shadow* |
| lâz | *opossum* | gʸà'n | *dish* |
| bāz | *fox* | biTz | *corner post* |
| bàz | *bee* | brìz | *squirrel* |

All four tones involve phonetic contours which can be described with reference to three heights. High tone rises from mid to high, the extent

of the rise being determined by the length of the syllable. Low tone rises slightly from low, but does not reach mid. It has the least contour of any of the tones. Falling tone falls from high to mid. Mid tone falls from mid to low. In spite of the fact that the tones are phonetically characterized by pitch contours, however, phonological rules and processes refer to the tones according to their height.

1.1 Seven phonological principles account for all phonologically conditioned alternations in TZ. Four of the principles are rules and three are processes. All operate above the natural phonemic level. I will discuss rules first and then processes. The first rule[3] I call progressive perturbation. This rule claims that there is a class of morphemes (marked with morpheme feature [+P]) which, for reasons other than the phonological shape of the morphemes, perturbs the low tone of a following syllable which is [-lar, -check] to a falling tone but itself is never progressively perturbed.

R45: PROGRESSIVE PERTURBATION

$$\begin{bmatrix} V \\ -lar \\ -check \\ -T\ hi \\ +T\ low \\ -P \end{bmatrix} \rightarrow [+T\ hi] \,/\, V \underset{[+P]}{\ } C_0 ____$$

Since morphemes of this class are never progressively perturbed, the rule is not directional. Morphemes which condition perturbation are not limited to any particular grammatical category as the following illustrate.

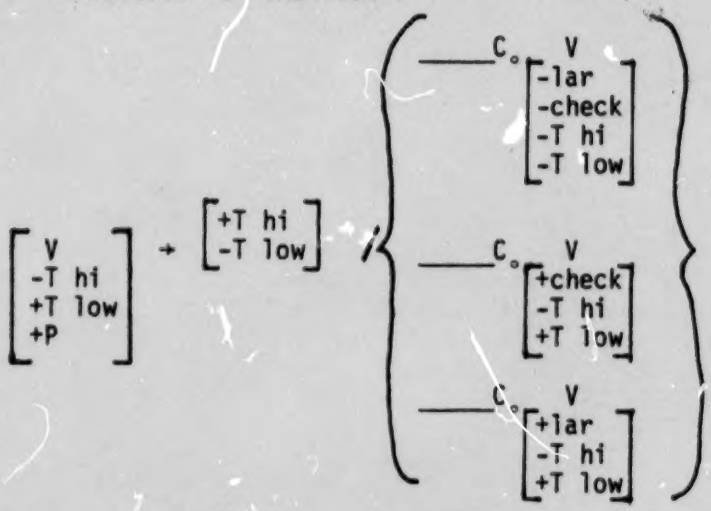
| | |
|---|---|
| tàp gòp | *four armadillos* |
| kʸùp gôp | *two armadillos* [+P] |
| zù tâp gòp | *be four armadillos* [+P] |
| zù kʸùp gôp | *be two armadillos* [+P][+P] |
| bì!ʸ gôp | *sister armadillo* [+P] |
| bìkʸ gòp | *brother armadillo* |
| psùg yù beèl | *sliced he meat* |
| kʸù psûg beèl | *who sliced meat* [+P] |
| gʸíkʸ rù réspèt⁴ | *will-do you respect* [+P] |
| gʸíkʸ yù rèspét | *will-do he respect* |

The first two examples show the effect of two quantifiers on a following word with low tone. One is of the class of perturbers and the other is not. The second two examples show what happens when two perturbers are

in linear sequence with one another. The class of perturbers is characterized by their failure to be progressively perturbed. The third pair of examples show that some nouns are perturbers and some are not. The fourth pair of examples show that an interrogative pronoun is a perturber. And the final examples show that some subject pronouns are perturbers but not all. A relatively small percentage of the lexicon conditions perturbation. The classification of lexical items by morpheme feature [P], however, crosscuts distinction by grammatical category. No examples of the failure of syllables that are [+lar] or [+check] to undergo the change are given because the second rule shows what happens in these cases.

The second rule may be stated as follows. Low tone of a morpheme with the same morpheme feature [+P] becomes high tone in three environments. The first environment is when followed by a morpheme that is not checked or laryngealized but which has mid tone. The second environment is when followed by a checked syllable nucleus with low tone. The third environment is when followed by a laryngealized syllable nucleus with low tone.[5]

R46: REGRESSIVE PERTURBATION 1




The following illustrate the operation of this principle.

| | |
|---|---|
| tàp bíIʸ | *four snakes* |
| kʸúp bíIʸ | *two snakes* [+P] |
| psúy gʸì nù nìs̀ | *quenched-he fire with water* [+P] |
| psúy gʸì nú yuù | *quenched-he fire with cargo* [+P] |
| kì čé' yà | *will-strike dog me* [+P] |
| kí bī̃Iʸ yà | *will-strike snake me* [+P] |

| | | |
|---|---|---|
| kír brìlz | *will-strike-you squirrel* | |
| | [+P] | |
| kír bè'n | *will-strike-you alligator* | |
| | [+P] | |

The first three pairs of examples illustrate the operation of the rule on words from different grammatical categories. The final two examples show the operation of the rule conditioned by [+lar] or [+check] syllable nucleus. They also illustrate the situation where the rules are fed by R43: CONTRACTION as the following partial derivation shows.

| | | |
|---|---|---|
| UF | k+dì≠rú#brìlz' | *will-strike≠you squirrel* |
| | | [+P] |
| | ... | |
| R43 | kì r brìlz | |
| R46 | kí r brìlz | |
| SF | kír brìlz | |

Had contraction not taken place, the structural description of the rule would not have been met since {≠rú} '2p sub' does not condition the change.

The final two rules deal with only three morphemes--{≠yù} '3p mas', {≠nyì} '3p fem', and {≠nà} '1p pl inc'--and their affect on adjacent morphemes. However, because of the high frequency of occurrence of these morphemes in language materials and because application of the rules is widespread, it would be hard to miss the irregularity produced by the rules in even a casual examination of the data. These pronouns differ from the other four pronouns in several ways. Of the seven pronouns, only these three are not [+P]. Also only these three are low tone in the bound form. Furthermore, {≠nyì} and {≠nà} stand out in that they condition certain alternations involving laryngealization and tone.

The first of these rules is a type of regressive perturbation conditioned by two morphemes only. Low tone of a morpheme whose nucleus is [-lar, -check, -P] becomes mid tone when followed by {≠nyì} '3 p fem' or {≠nà} '1p pl inc.'

R40: REGRESSIVE PERTURBATION 2

$$\begin{bmatrix} V \\ -lar \\ -check \\ -T\ hi \\ +T\ low \\ -P \end{bmatrix} \rightarrow [-T\ low] \ / \ ____ C_0 \begin{Bmatrix} \{\neq nyì\} \\ \{\neq nà\} \end{Bmatrix}$$

The following data illustrate the operation of this rule.

| | |
|---|---|
| gʸìdàg yù | *ear his* |
| gʸìdāg nʸì | *ear hers* |
| gʸìdāg nà | *ear ours* |
| bìgʸ yù | *thirsted he* |
| bTgʸ nʸì | *thirsted she* |
| bTgʸ nà | *thirsted we* |
| blèz yù | *waited he* [+P] |
| blèz nʸiTˀ | *waited she* [+P] |
| blèz naā | *waited we* [+P] |
| šèy | *uncle his* |
| šēnʸ | *uncle hers* |
| šēn | *uncle ours* |

The first six examples show the operation of the rule on a noun and then on a verb. The next three show that the rule does not affect morphemes that are [+P]. Rather, these morphemes perturb the tones of the pronouns by R45: PROGRESSIVE PERTURBATION. The tones are then adjusted according to the influence of stress and of laryngealization (discussed in section 3 below). The last three examples show that the rule is not blocked by MR43: CONTRACTION. It is ordered to precede MR43; however, this is merely a consequence of the form of the rule.

The final rule states that the low tone of an open syllable in a morpheme which is [+P] becomes high tone when followed by {≠nyì} '3p fem', {≠yù} '3p mas', or by {≠nà} '1p pl inc'.

R41: REGRESSIVE PERTURBATION 3

$$\begin{bmatrix} V \\ -T\ hi \\ +T\ low \\ +P \end{bmatrix} \rightarrow \begin{bmatrix} V \\ +T\ hi \\ -T\ low \end{bmatrix} / \text{———} \left\{ \begin{matrix} \{\neq nyì\} \\ \{\neq yù\} \\ \{\neq nà\} \end{matrix} \right\}$$

Note that these morphemes always undergo R43: CONTRACTION since the syllable is open. The following data illustrate the operation of this rule.

| | |
|---|---|
| kìmʸ | *will-hit-her (resp)* [+P] |
| kíy | *will-hit-he* [+P] |
| kínʸ | *will-hit-she* [+P] |

| | |
|---|---|
| kín | *will-hit-we* [+P] |
| gùtàm | *was-blessed-her (resp)* [+P] |
| gùtáy | *was-blessed-he* [+P] |
| gùtán$^{Y}$ | *was-blessed-her* [+P] |
| gùtán | *was-blessed-we* [+P] |

The first example in each set of four shows the unperturbed tone of the stem. In the following examples of each set, tone has been perturbed by R41.

1.2 Of the three tone processes operating above the natural phonemic level, a good part of the evidence for the first two has already been presented in the preceding section (1.1). I first present these two processes followed by a discussion of the evidence for them. I then discuss the third process.

The first process states that laryngealization lowers tone. High tone and falling tone become mid tone, and mid tone becomes low tone on a laryngealized syllable.

P2: TONE LOWERING ON LARYNGEALIZED VOWELS

$$[\alpha T\ hi] \rightarrow \begin{bmatrix} -T\ hi \\ -\alpha T\ low \end{bmatrix} / \underset{[+lar]}{V}$$

Application of this rule is without exception, thus requiring an abstract underlying form to be posited on many syllables. When surface tone is mid tone, the rule requires that underlying tone be high tone on laryngealized syllables. When surface tone is low tone, I posit an underlying mid tone on laryngealized syllables. P2 then produces correct surface tone.

The second process is also tone lowering. Mid tone becomes low tone in a checked syllable.

P3: TONE LOWERING ON CHECKED VOWELS

$$[-T\ hi] \rightarrow [+T\ low] / \underset{[+check]}{V}$$

Again, whenever surface tone is low on a checked syllable, I posit an underlying mid tone. Since P3 is not restricted in its application, correct surface tone will automatically result.

Evidence for P2 and P3 and the accompanying analysis for underlying tone occur in six parts of the paper.[8] First, in the beginning of section 1., I stated that there was no contrast between high tone or falling tone and mid tone on laryngealized syllables. I also stated that there was no contrast between mid tone and low tone on checked syllables. P2 and P 3 provide a

functional explanation for these facts. The reason the language does not allow such contrasts is tnat any such underlying tone would be automatically lowered.

Second, evidence is provided by R45: PROGRESSIVE PERTURBATION. I suggest that the reason [+lar] or [+check] syllables never undergo perturbation is that they never have an underlying low tone. Thus, given P2 and P3 and the accompanying analysis for underlying tone, R45 can be stated with greater generality.

R45: PROGRESSIVE PERTURBATION

$$\begin{bmatrix} V \\ -T\ hi \\ +T\ low \\ -P \end{bmatrix} \rightarrow [+T\ hi] \ / \ \underset{[+P]}{V}\ C_0____$$

The segment undergoing the change need not be specified [-lar, -check] since such segments will never have underlying tone.

Third, evidence is provided by R46: REGRESSIVE PERTURBATION 1. Recall that syllables that are [-lar, -check, -T hi, -T low] or that are [+lar, -T hi, +T low] or that are [+check, -T hi, +T low] condition regressive perturbation. I suggest that the reason laryngealized or checked syllables with a low tone condition regressive perturbation is that they are underlying mid tone, correct surface tone being a result of the tone lowering processes. Thus, given the tone lowering processes and the accompanying analysis for underlying tone, R46 can be stated with greater generality.

R46: REGRESSIVE PERTURBATION

$$\begin{bmatrix} V \\ -T\ hi \\ +T\ low \\ +P \end{bmatrix} \rightarrow \begin{bmatrix} +T\ hi \\ -T\ low \end{bmatrix} / ____ C_0 \begin{bmatrix} V \\ -T\ hi \\ -T\ low \end{bmatrix}$$

The conditioning syllable nucleus can be checked, laryngealized or neither.

Fourth, evidence is provided by R40: REGRESSIVE PERTURBATION 2. Recall that syllables with a nucleus that is [+check] or [+lar] do not undergo the rule when they would otherwise meet the structural description. Again, I suggest that the reason they do not undergo the operation of the rule is that they are never underlying low tone. Thus, the rule can be stated with greater generality.

R40: REGRESSIVE PERTURBATION 2.

$$\begin{bmatrix} V \\ -T\ hi \\ +T\ low \\ -P \end{bmatrix} \rightarrow [-T\ low] \ / \ ____ C_0 \begin{Bmatrix} \{=nyì\} \\ \{=nà\} \end{Bmatrix}$$

Rules 40, 45, 46 therefore, require the abstract underlying tone in order to operate correctly. Thus, they are ordered before P2 and P3 having an antibleeding relationship with them.

Fifth, the rules of grammatical perturbation provide evidence for the tone lowering processes and the accompanying underlying analysis. In the next section I show that grammatical perturbation provides the context on which P2: TONE LOWERING ON LARYNGEALIZED VOWELS operates.

Sixth, rules involving alternations in laryngealization provide evidence. In section 4. I show that these rules in conjunction with the rules of grammatical perturbation provide the context in which the tone lowering processes operate.

In summary, therefore, the two tone lowering processes and the accompanying analysis for underlying tone are defended on the basis of three types of evidence. The first type is surface contrast. The second type is the requirements of three rules. And the third type is the operation of the processes under situations created by the rules of grammatical perturbation and laryngealization.

The final process I present accounts for the neutralization of high tone and falling tone in unstressed syllables.

P4: TONE ADJUSTMENT ON UNSTRESSED VOWELS

$$[+T\ hi] \rightarrow [-T\ low] \ / \ \underset{[-stress]}{\underline{\quad V \quad}}$$

The operation of this rule is seen on morphemes that have undergone R45: PROGRESSIVE PERTURBATION. The following partial derivation illustrates the operation of this rule.

| | | |
|---|---|---|
| UF | k+yíky+rú#rèspét | *will-do you respect* [+P] |
| R13 | k yíky rú rèspÉt | |
| | ... | |
| R45 | g$^{Y}$íkY rú rêspét | |
| P4 | g$^{Y}$íkY rú réspét | |

R13: STRESS PLACEMENT will be discussed in section 5.

R45: PROGRESSIVE PERTURBATION causes low tone of the syllable following a morpheme which is [+P] to become falling tone. P4 then causes this falling tone to become high tone.

2. Grammatical perturbation occurs only on adjectives and verbs. The principle operating among adjectives is a simple one. Whatever the underlying tone of an adjective is, the tone of an adjective in the noun phrase is high tone.

R7: ADJECTIVAL TONE

$$V \rightarrow \begin{bmatrix} +T\ hi \\ -T\ low \end{bmatrix} / \begin{Bmatrix} N \\ Adj \end{Bmatrix} \underset{NP}{+\ ____\ ]}$$

The following examples illustrate the operation of the rule. Underlying tone is that in the stative construction.

| | *lame* | *skinny* | *hot* | *strong* |
|---|---|---|---|---|
| *he is ...* | tîs yù | rît yù | zTg yù | fért yù |
| *...person* | mbékʸ tís | mbékʸ rít | mbékʸ zíg | mbékʸ fért |
| *...armadillo* | gòp tís | gòp rít | gòp zíg | gòp fért |
| *...fox* | bēz tís | bēz rít | bēz zíg | bēz fért |
| *...cat* | bîǰ tís | bîǰ rít | bîǰ zíg | bîǰ fért |

This rule will be treated as a major rule since its application is widespread. I have noticed some exceptions, however, and these will be marked as such in the lexicon. The following are exceptions to the rule.

| | *small* | *thick* |
|---|---|---|
| *he is...* | pîs yù | mbàt yù |
| *...person* | mbékʸ pîs | mbékʸ mbàt |
| *...armadillo* | gòp pîs | gòp mbàt |
| *...fox* | bēz pîs | bēz mbàt |
| *...cat* | bîǰ pîs | bîǰ mbàt |

Looking at verbs paradigmatically, eleven productive patterns of tone perturbation occur. In context all deviation from these patterns are accounted for by the rules of phonological perturbation.[9] Pattern I, illustrated by do, strike, and nurse, is characterized by no tone change.[10]

I.

| | do | lp | strike | lp | nurse | lp |
|---|---|---|---|---|---|---|
| P | ɕʸíkʸá | | dl̀ | | čîčá | |
| H | ríkʸá | | rdl̀ | | rčîčá | |
| C | bíkʸá | | bdl̀ | | pčîčá | |
| U | nʸgʸíkʸá | | ndl̀ | | nčîčá | |

| | | | |
|---|---|---|---|
| N | wàyíkʸà | wàdì | wàčîčá |
| N+P | wàgʸíkʸá | wàgdì | wàkčîčá |
| N+U+P | wàngʸíkʸá | wàndì | wànčîčá |

| | 2p | 2p | 2p |
|---|---|---|---|
| P | gʸíkʸ rú | kʸìr | čîč rú |
| H | ríkʸ rú | rgʸìr | rčîč rú |
| C | bíkʸ rú | bdìr | pčîč rú |
| U | nʸgʸíkʸ rú | nʸgʸìr | nčîč rú |
| N | wàyíkʸ rú | wàyìr | wàčîč rú |
| N+P | wàgʸíkʸ rú | wàkʸìr | wàkčîč rú |
| N+U+P | wàngʸíkʸ rú | wànkʸìr | wànčîč rú |

Pattern II, illustrated by dress is characterized by tone alternations conditioned by person only.[11]

II. dress

| | 1p | 2p |
|---|---|---|
| P | zú | zùr |
| H | rzú | rzùr |
| C | bzú | bzùr |
| U | nzú | nzùr |
| N | wàzú | wàzùr |
| N+P | wàksú | wàksùr |
| N+U+P | wànsú | wànsùr |

An underlying low tone of a verb stem becomes high tone in the first person.

Patterns III, IV, V illustrated by bend, slip and be angry are characterized by tone alternations conditioned by aspect only.

| III. | | IV. | V. |
|---|---|---|---|
| | bend | slip | be angry |
| | 1p | 1p | 1p |
| P | ǰóŋ́á | rílʸá | gázî lāgʸá |
| H | rǰòŋ́á | drTIʸá | rzì lāgʸá |
| C | bǰòŋ́á | brTIʸá | gùzì lāgʸá |
| U | nǰóŋ́á | nrílʸá | nʸgʸázì lāgʸá |
| N | wàǰóŋ́á | wárílʸá | wàzî lāgʸá |
| N+P | wàkčòŋ́á | wàgrTIʸá | wàgàzì lāgʸá |
| N+U+P | wànčòŋ́á | wànrTIʸá | wàngàzì lāgʸá |
| | 2p | 2p | 2p |
| P | ǰóŋ rú | rílʸ rú | gàzî lāgʸ rú |
| H | rǰòŋ rú | drTIʸ rú | rzì lāgʸ rú |
| C | bǰòŋ rú | brTIʸ rú | gùzì lāgʸ rú |
| U | nǰóŋ rú | nrílʸ rú | nʸgʸázì lāgʸ rú |
| N | wàǰóŋ rú | wàrílʸ rú | wàzî lāgʸ rú |
| N+P | wàkčòŋ rú | wàgrTIʸ rú | wàgàzì lāgʸ rú |
| N+U+P | wànčòŋ rú | wànrTIʸ rú | wàgàzì lāgʸ rú |

For verbs of pattern III, underlying low tone of the verb stem becomes high tone in P, U and N. For verbs of pattern IV, underlying mid tone becomes high tone in P, U and N. For verbs of pattern V, underlying low tone becomes falling tone in P, U and N.

Patterns VI, VII and VIII are characterized by tone alternations conditioned by both aspect and person. These are illustrated by handle, cross and slice. Handle illustrates the most common pattern in the language.

| VI. | | VII. | VIII. |
|---|---|---|---|
| | handle | cross | slice |
| | 1p | 1p | 1p |
| P | dáná | dédá | sûgá |
| H | rdáná | rdédá | rsùgá |
| C | bdáná | bdédá | psûgá |
| U | ndáná | ndédá | nsûgá |
| N | wàdáná | wàdédá | wàsûgá |
| N+P | wàgdáná | wàgdédá | wàksûgá |
| N+U+P | wàndáná | wàndédá | wànsûgá |
| | 2p | 2p | 2p |
| P | gán rú | déd rú | sûg rú |
| H | ràn rú | rdēd rú | rsùg rú |
| C | bdàn rú | bdēd rú | psùg rú |
| U | nʸgʸaān rú | ndéd rú | nsûg rú |
| N | wán rú | wàdéd rú | wàsûg rú |
| N+P | wàgàn rú | wàgdēd rú | wàksùg rú |
| N+U+P | wà gàn rú | wàndēd rú | wànsùg rú |

For verbs of pattern VI, underlying low tone of the verb stem becomes high tone in 1p and P, U and N. For verbs of pattern VII, underlying mid tone becomes high tone in 1p and P, U and N. For verbs of pattern VIII, underlying low tone becomes falling tone in 1p and P, U and N.

There are several classes of verbs, all having /y/ initial stem, which differ from the eight patterns thus far discussed only by undergoing a tone change in the habitual form also. Pattern IX is characterized by tone alternations conditioned by aspect only, and differs from IV only in the habitual form.

IX.

| | anchor | |
|---|---|---|
| | 1p | 2p |
| P | čézá | čéz rú |
| H | rzézá | rzéz rú |
| C | weèzá | weèz rú |
| U | nʸgʸézá | nʸgʸéz rú |
| N | wàyézá | wàyéz rpu |
| N+P | wàčeèzá | wàčeèz rú |
| N+U+P | wànčeèzá | wànčeèz rú |

Since the verb stem nucleus of anchor is laryngealized, the underlying tone is mid tone. (See section 1.2.) Thus, underlying mid tone becomes high in P, H, U and N.

The last patterns, X and XI, are characterized by tone changes conditioned by aspect and person. They differ from verbs of patterns VI and VII only in the habitual form. Ascend and descend illustrate these patterns.

| X. | ascend | XI. | descend |
|---|---|---|---|
| | 1p | | 1p |
| P | gʸétá | | čúpá |
| H | yétá | | rzúpá |
| C | bétá | | gúpá |
| U | nʸgʸétá | | nʸgʸúpá |
| N | wàyétá | | wàyúpá |
| N+P | wàgʸétá | | wàčúpá |
| N+U+P | wàngʸétá | | wànčúpá |
| | 2p | | 2p |
| P | gʸét rú | | čúp rú |
| H | yét rú | | rzúp rú |

| | | |
|---|---|---|
| C | bèt rú | gūp rú |
| U | nʸgʸét rpu | nʸgʸúp rú |
| N | wàyét rú | wàyúp rú |
| N+P | wàgʸèt rú | wàčūp rú |
| N+U+P | wàngʸèt rú | wànčūp rú |

For verbs of pattern X, underlying low tone of the verb stem becomes high tone in 1p and P, H, U and N. For verbs of pattern XI, underlying mid tone becomes high tone in 1p and P, H, U and N.

Before formulating the rules, I will discuss tone on verbs with the motion auxiliary, on verbs with two syllable stems, on derived verbs, and on passive constructions. On verbs with the motion auxiliary {yà-}, tone perturbs on the verb stem conditioned by person only. On the auxiliary prefix, tone perturbs according to person and aspect. There is no tone change on the verb stem conditioned by aspect. Kill illustrates tone on the verbs with the motion auxiliary.

kill

| | 1p | 1p mot aux |
|---|---|---|
| P | dútá | čá tútá |
| H | rdútá | rzá tútá |
| C | bdútá | gʷá tútá |
| U | ndútá | nʸgʸá tútá |
| N | wàdútá | wàyá tútá |
| N+P | wàgdútá | wàčà tútá |
| N+U+P | wàndútá | wànčá tútá |

| | 2p | 2p mot aux |
|---|---|---|
| P | kút rú | čá tùt rú |
| H | rùt rú | rzà tùt rú |
| C | bìt rú | gʷà tùt rú |
| U | nʸgʸút rú | nʸgʸá tùt rú |
| N | wút rú | wàyá tùt rú |

| | | |
|---|---|---|
| N+P | wàkùt rú | wàčà tùt rú |
| N+U+P | wànkùt rú | wànčà tùt rú |

Thus, the rules are clitic bound, i.e., change in aspect on the motion auxiliary will not affect the tone of the stem of the main verb since a clitic boundary intervenes between the motion auxiliary and the stem.

The significant thing about verbs with two syllable stems is that only the first syllable may undergo a grammatical tone change. Lead is typical of verbs of this type.

lead

| | 1p | 2p |
|---|---|---|
| P | gáyû | gáyûr |
| H | rgáyû | rgàyûr |
| C | bgáyû | bgàyûr |
| U | ngáyû | ngáyûr |
| N | wàgáyû | wàgáyûr |
| N+P | wàgáyû | wàgàyûr |
| N+U+P | wàngáyû | wàngàyûr |

Similarly with passives, only the passive morpheme {dù+} may undergo grammatical perturbation. The verb stem will always have underlying tone. Tumble and buy illustrate tone on passive constructions.

tumble

| | 1p | 1p passive |
|---|---|---|
| P | tùbá | dúdùbá |
| H | rtùbá | rdùdùbá |
| C | ptùbá | bdùdùbá |
| U | ntùbá | ndúdùbá |
| | 2p | 2p passive |
| P | tùb rú | dúdùb rú |
| H | rtùb rú | rdùdùb rú |

| | | |
|---|---|---|
| C | ptùb rú | bdùdùb rù |
| U | ntùb rú | ndúdùb rú |

buy

| | 1p | 2p | 3p pass |
|---|---|---|---|
| P | zí | zír | dúzìlnʸ |
| H | rzí | rzìlr | rdùzìlnʸ |
| C | wí | wìlr | bdùzìlnʸ |
| U | nzí | nzìír | ndúzìlnʸ |

The verb stem of tumble never perturbs. In passive constructions, however, tone of the passive morpheme does. The tone of buy perturbs except in passive constructions where only the tone of the passive morpheme perturbs. Furthermore, grammatical tone on buy is conditioned by person and aspect. However, grammatical tone on the passive is always conditioned by aspect only. The analysis, therefore, must reflect the following two generalizations. First, within clitic bounds, tone can perturb on only one syllable. If it perturbs on the passive morpheme, it cannot perturb on the stem of the main verb. Second, tone will always perturb on the leftmost perturbable syllable. In the final analysis, it will be seen that all verb stems which are [-T hi, -P] in UF are perturbable. The passive morpheme is perturbable. The motion auxiliary is perturbable. The verbalizer is sometimes perturbable. The negative is not perturbable.

Grammatical tone of the verbalizer {à+} is conditioned by aspect only as be cold illustrates.

be cold

| | 1p | 2p |
|---|---|---|
| P | gázTIʸá | gázTIʸ rú |
| H | ràzTIʸá | ràzTIʸ rú |
| C | gùzTIʸá | gùzTIʸ rú |
| U | nʸgʸázTIʸá | nʸgʸázTIʸ rú |
| N | wázTIʸá | wázTIʸ rú |
| N+P | wàgàzTIʸá | wàgàzTIʸ rú |
| N+U+P | wàngàzTIʸá | wàngàzTIʸ rú |

Only the tone of the leftmost perturbable syllable changes in this example; however, there are exceptions to this principle as are illustrated by be bored.

| | be bored | |
|---|---|---|
| | 1p | 2p |
| P | gàzédá | gàzéd rú |
| H | ràzeèdá | ràzeèd rú |
| C | gùzeèdá | gùzeèd rú |
| U | $n^{Y}g^{Y}$ázeèdá | $n^{Y}g^{Y}$ázeèd rú |
| N | wázeèdá | wázeèd rú |
| N+P | wàgàzeèdá | wàgàzeèd rú |
| N+U+P | wàngàzeèdá | wàngàzeèd rú |

Grammatical perturbation occurs on only the forms one would expect: however, in one, or sometimes two (see be angry) grammatical environments, perturbation does not occur on the leftmost perturbable syllable. Be cold shows clearly that {à+} 'verbalizer' is perturbable. Tone is perturbed on the verbalizer in U and N of be bored. However, it perturbs on the stem of the main verb in P. The situation is even more complicated for be angry, where both wázì lāg$^{Y}$á and wàzî lāg$^{Y}$à *I will not be angry* are acceptable. In the first case tone perturbs on {à+} 'verbalizer' and in the second case on {zì#lāg$^{Y}$} *be angry*. Thus, while tone may perturb on only one syllable within clitic bounds, there are exceptions to the claim that it will always perturb on the leftmost perturbable syllable. One possible solution to the problem would be to break up the rule and treat the exceptions in each subpart where they occur. I have, however, noticed no exceptions to the rule on passive constructions or on verbs with two syllable stems. For these forms, tone perturbs only on the leftmost perturbable syllable within the clitic bounds. Since the exceptions are rare in the data I have thus far observed and since I have studied the speech of only one individual, I leave the problem for further investigation.

The following four rules generate grammatical tone.

R9: 1p SUBJECT TONE ADJUSTMENT

$$\begin{bmatrix} \cdot T\ hi \\ -P \end{bmatrix} \rightarrow \begin{bmatrix} +T\ hi \\ -T\ low \end{bmatrix} \ / \ +C_{0}\underline{\qquad}_{LR} \text{ in 1p verb stem}$$

Condition: (1) clitic bound
(2) can apply only once within clitic boundary

R10: POTENTIAL TONE ADJUSTMENT

$$\begin{bmatrix}-T\ hi\\-P\end{bmatrix} \rightarrow \begin{bmatrix}+T\ hi\\-T\ low\end{bmatrix} \ / \ +C_{o}\ \underline{\quad}\ _{LR} \text{ in P, U, N verb stem}$$

Condition: (1) clitic bound
(2) can apply only once within clitic boundary

MR11: H TONE ADJUSTMENT

$$[-T\ hi] \rightarrow \begin{bmatrix}+T\ hi\\-T\ low\end{bmatrix} \ / \ +y\ \underline{\quad} \text{ in H verb stem}$$

MR12: TONE READJUSTMENT

$$[+T\ hi] \rightarrow [+T\ low] \ / \ +\underline{\quad}$$

R9 accounts for alternations conditioned by 1p. R10 accounts for alternations conditioned by semantic potential and unreal. R9 and R10 are major rules. Thus they capture the generalization that grammatical perturbation is regular. Tone always and only perturbs on verb stems in which the nucleus of the first syllable is [-T hi, -P]. Furthermore, they reflect the fact that the majority of the verbs in the language require both R9 and R10. Those verbs in which perturbation is conditioned by aspect only are marked [-R9] in the lexicon. Those verbs in which perturbation is conditioned by person only are marked [-R10]. MR11 accounts for alternations conditioned by habitual aspect. MR12 accounts for alternations in which the perturbed tone is falling tone not high tone. They are minor: i.e., the alternations they account for are not predictable except by reference to ad hoc word class. The following table shows which rules are required to produce the tone patterns for each of the eleven classes.

| I | II | III | IV | V | VI | VII | VIII | IX | X | XI |
|---|---|---|---|---|---|---|---|---|---|---|
| | R9 | R10 | R10 | R10 | R9 | R9 | R9 | R10 | R9 | R9 |
| | | | | MR12 | R10 | R10 | R10 | MR11 | MR11 | R10 |
| | | | | | | | MR12 | | | MR11 |

Wherever the same rules are required to produce alternations in different classes, the classes differ only in underlying tone.

The characteristics of grammatical perturbation in several ways resemble those of progressive perturbation. Tone always perturbs from [-T hi] to [+T hi]. Furthermore, only syllables that are [-P] undergo grammatical perturbation. With progressive perturbation, however, only low tone perturbs. With grammatical perturbation, low tone and mid tone perturb. With progressive perturbation, low tone becomes falling tone. With grammatical perturbation, tone is perturbed to either high tone or falling tone. Historically, what is now analyzed as grammatical perturbation may have once been the automatic result of a principle like R45: PROGRESSIVE PERTURBATION conditioned by a full syllable aspect prefix. In TZ (but not in Isthmus Zapotec) the aspect prefix has reduced to a consonant. What

remains is the effect of this historical morpheme on the verb stem. At the present time, however, the differences between grammatical perturbation and progressive perturbation are great enough to require the analysis to treat them as different principles.

It is interesting to note that grammatical perturbation does not follow the morphology in TZ. Tone does not perturb on each construction in which the potential prefix {k+} occurs: P, N+P, N+U+P. It does perturb, however, on each construction in which the semantic idea 'potential' is present and in which the potential morpheme occurs in other Zapotec dialects: P, N. In light of what has already been said about the historical source of grammatical perturbation, it would appear that the negative-aspect interrelationship that presently exists in TZ does not represent the historical pattern.

3. In discussing alternations involving laryngealization, I first present those rules which directly involve tone. I then proceed to rules which seem to be grammatically conditioned. In the first rule, a small class of morphemes, marked [+L], condition laryngealization in a preceding syllable with falling tone.

R47: REGRESSIVE LARYNGEALIZATION

$$V \rightarrow [+lar] \; / \; \underline{\quad\quad} \; \begin{bmatrix} +T\ hi \\ +T\ low \end{bmatrix} \; C_0 \; V \; [+L]$$

I am aware of only four members of this class: {≠nyi} '3p fem', {≠na} '1p pl exc', {≠gala} 'before', and {≠la} 'emphatically'. The following data illustrate the operation of this rule.

| | |
|---|---|
| tî̂s yù | *lame he* |
| tîTs nʸì | *lame she* |
| gûî yù | *grandfather he* |
| guūî nʸì | *grandfather she* |
| gáyûy | *will-lead he* |
| gáyuūnʸ | *will-lead she* |

Since {≠nyi} is [+L], it conditions regressive laryngealization. {≠yu} does not. The rules of grammatical perturbation feed R47 as the following partial derivations show.

| | *she will slice* | *she sliced* | *you will slice* |
|---|---|---|---|
| UF | k+sùg≠nyì | gu+sùg≠nyì | k+sùg≠rú |
| R10 | k súg nyì | --- | k súg rú |

| | | | |
|---|---|---|---|
| MR12 | k sûg nyì | --- | k sûg rú |
| R47 | k suûg $n^{Y}$ì | --- | --- |
| P2 | suūg $n^{Y}$ì | --- | --- |
| SF | suūg $n^{Y}$ì | psùg $n^{Y}$ì | sûg rú |

The second rule states that the same class of morphemes, [+L], are laryngealized following a syllable with morpheme feature [+P].

R48: PROGRESSIVE LARYNGEALIZATION

$$\overset{V}{[+L]} \rightarrow [+lar] \; / \; \overset{V}{[+P]} \; C_{o} ____$$

The following illustrate the operation of this rule.

| | | 3p mas | 3p fem |
|---|---|---|---|
| faint | [+P] | ǰò'w yú | ǰò'w $n^{Y}$iT |
| wait | [+P] | $k^{W}$èz yú | $k^{W}$èz $n^{Y}$iT |

Most verbs which condition progressive perturbation and progressive laryngealization are marked [+P] in the lexicon. However, there is a small class of verbs in which tone does not perturb grammatically, but in which in exactly those environments where one expects grammatical perturbation, the feature [+P] is acquired. Note thirst.

| | thirst |
|---|---|
| | 3p fem |
| P | $k^{W}$ìg$^{Y}$ $n^{Y}$iT |
| H | rbìg$^{Y}$ $n^{Y}$ì |
| C | bìg$^{Y}$ $n^{Y}$ì |
| U | mbìg$^{Y}$ $n^{Y}$iT |
| N | wàbìg$^{Y}$ $n^{Y}$iT |
| N+P | wàk$^{W}$ìg$^{Y}$ $n^{Y}$ì |
| N+U+P | wànk$^{W}$ìg$^{Y}$ $n^{Y}$ì |

The following rule expresses this principle.

MR8: PERTURBER ADJUSTMENT

V → [+P] / in P, U, N

The fourth rule performs the same function as tone lowering. TZ does not allow high tone on laryngealized syllables. One way that this comes about as shown earlier is through tone lowering. Another way is by vowels losing their laryngealization on syllables with high tone.

R15: LARYNGEAL REDUCTION

$$V \rightarrow [-lar] \; / \; \underline{\quad} \; \begin{bmatrix} +T \text{ hi} \\ -T \text{ low} \end{bmatrix}$$

This rule is fed by grammatical perturbation on adjectives.

| | |
|---|---|
| gaày byáh | *five trips* |
| byáh gáy | *trip fifth* |
| kaàs má | *it (animal) is black* |
| bTI$^{Y}$ kás | *black snake* |

The adjective of the second member of each pair of examples loses its laryngealization due to its tone having been perturbed by R7: ADJECTIVAL TONE.

In some cases R15 is fed by grammatical perturbation on verbs. Anchor illustrates this case.

| | anchor | |
|---|---|---|
| | 1p | 2p |
| P | čézá | čéz rú |
| H | rzézá | rzéz rú |
| C | weèzŕa | weèz rú |
| U | n$^{Y}$g$^{Y}$ézá | n$^{Y}$g$^{Y}$éz rú |
| N | wàyézá | wàyéz rú |
| N+P | wàkčeèzá | wàkčeèz rú |
| N+U+P | wànčeèzá | wànčeèz rú |

The patterns of laryngealization, however, do not always follow from the patterns of grammatical perturbation. Note the following patterns.[12]

| | catch | | relate | |
|---|---|---|---|---|
| | 1p | 2p | 1p | 2p |
| P | dúbá | kúb rú | dó dú | gó nùr |
| H | rdúbá | rūb rú | rdó dú | rò nùr |
| C | bdúbá | bdūb rú | bdó dú | beè nùr |
| U | ndúbá | $n^{y}g^{y}uūb$ rú | ndó dú | $n^{y}g^{y}oō$ nùr |
| N | wàdúbá | wúb rú | wàdó dú | wó nùr |
| N+P | wàgdúbá | wàkūb rú | wàgdó dú | wàgò nùr |
| N+U+P | wàndúbá | wànkūb rú | wàndó dú | wàngò nùr |
| | give | | buy | |
| | 1p | 2p | 1p | 2p |
| P | rík á | $k^{w}$ík rú | zí | zír |
| H | drík á | rbìk rú | rzí | rziìr |
| C | brík á | brìk rú | wí | wìr |
| U | nrík á | mbík rú | nzí | nziTr |
| N | wàrík á | wàbík rú | wàzí | wàzír |
| N+P | wàgrík á | wàk$^{w}$ìk rú | wàksí | wàksìr |
| N+U+P | wànrík á | wànk$^{w}$ìk rú | wànsí | wànsìr |

Catch suggests a need for a rule laryngealizing second and third person unreal.

MR16: U-LARYNGEALIZATION

V → [+lar] / in {2p, 3p}, U verb stem

Give suggests a need for a rule laryngealizing second and third person completive.

MR17: C-LARYNGEALIZATION

V → [+lar] / in {2p, 3p}, C verb stem.

Relate requires application of both rules. The analysis I suggest for buy is to call the base form of the stem {zlT}. This is supported by the passive.

| | buy |
|---|---|
| | 3p pas |
| P | dúzìlnʸ |
| H | rdùzìlnʸ |
| C | bdùzìlnʸ |
| U | ndúzìlnʸ |
| N | wàdúzìlnʸ |
| B+P | wàkdùzìlnʸ |
| N+U+P | wàndùzìlnʸ |

The tone of the base form is grammatically perturbed by R9 and R10. Laryngealization is then lost on the perturbed forms by R15. Then the second and third person unreal is laryngealized by MR16. Tone lowering, P2, follows. Thus, all the forms in the active paradigm of buy are accounted for. My reason for choosing this analysis is that the analysis claims that the parallel between grammatical perturbation and laryngealization is not just coincidental but the same principle is operating in buy as is operating in anchor and in adjectives. The rule laryngealizing second and third person unreal is needed independently of the suggested analysis for buy in any case. The pattern illustrated by buy seems to be the most common one among verbs with alternations involving laryngealization.

One final pattern of this type needs to be considered. It is illustrated by remove.

| | remove | |
|---|---|---|
| | 1p | 2p |
| P | lo͞o͞ | kór |
| H | rlo͞o͞ | rboòr |
| C | blo͞o͞ | bloòr |
| U | nlo͞o͞ | mbo͞o͞r |
| N | wàlo͞o͞ | wàbór |
| N+P | wàglo͞o͞ | wàkoòr |
| N+U+P | wànlo͞o͞ | wànkoòr |

This pattern suggests the need for a rule laryngealizing lp stem.

MR18: lp-LARYNGEALIZATION

V → [+lar] / in lp stem

The underlying form for the stem of remove is {lo$\bar{o}$}. Tone of the base form is grammatically perturbed by R9 and R10. Laryngealization is then lost on the perturbed forms by R15. The stem is then laryngealized in the lp and in the U by MR16 and MR18. Tone lowering, P2, follows. Thus, all the forms of remove are accounted for. Like the rules of grammatical perturbation, therefore, grammatical rules of laryngealization are seen to be conditioned by person and aspect.

The final rule of this section accounts for the fact that the verb stem often becomes laryngealized in the causative.

MR19: CAUSATIVE LARYNGEALIZATION

V → [+lar] / in caus stem

| | non-caus | caus |
|---|---|---|
| *thirst* | k$^{w}$ìg$^{y}$ rú | k$^{w}$iTg$^{y}$ rú |
| *sleep* | gás rú | gaā̄s rú |
| *bend* | ǰóŋ rú | čoō̄n rú |
| *wait* | k$^{w}$èz rú | k$^{w}$eē̄z rú |
| *beat* | gàz rú | gaā̄z rú |
| *anchor* | čéz rú | šeē̄z rú |
| *scatter* | g$^{y}$áč dér | čaā̄č rú |
| *scare* | ǰíb rú | čITb rú |

4. The rules presented in the last two sections have been seen to feed and bleed P2: TONE LOWERING ON LARYNGEALIZED VOWELS. Before continuing, I make explicit the relationship of these rules to P2. R15: LARYNGEAL REDUCTION bleeds P2. However, the situation in which P2 applies is created by grammatical rules in three ways. First, it is created by tone adjustment rules (R9-R12) operating on underlying stems with laryngealized nuclei which are exceptional with respect to R15. The partial derivation of guūr *you will lie* illustrates this situation. Second, it is created by tone adjustment rules in conjunction with MR16: U-LARYNGEALIZATION of MR18: lp-LARYNGEALIZATION. The partial derivations of n$^{y}$g$^{y}$oō̄r *you should have ground* and nzITr *you should have bought* illustrate this situation. Third, it is created by MR17: C-LARYNGEALIZATION acting on forms on which the tone is not grammatically perturbed. The partial derivation of goòr *you ground* illustrates this situation.

| | *you will lie* | *you should have ground* | *you should have bought* | *you ground* |
|---|---|---|---|---|
| UF | k+guū+rú | ngy+dōr+rú | ngy+ziT+rú | gb+dōr+rú |
| R10 | k guú rú | ngy ó rú | ngy zíí rú | --- |
| R15 | --- | --- | ngy zí rú | --- |
| MR16 | --- | ngy oó rú | ngy zíí rú | --- |
| MR17 | --- | --- | --- | gb oō rú |
| | ... | ... | ... | ... |
| P2 | guūr | $n^{Y}g^{Y}o\bar{o}r$ | nziTr | goòr |

Thus, rules of grammatical perturbation and laryngealization provide evidence for the tone lowering processes by creating the situation in which they apply.

5. In polysyllabic morphemes stress is always stem final.

R13: STRESS PLACEMENT

$$V \rightarrow [+\text{stress}] \; / \; \underset{\text{stem}}{____} \; +$$

| | |
|---|---|
| gayUr | *you will lead* |
| grambEšt | *elephant* (lit. gran bestia) |
| rištOO | *story* (from riiǰ *word* and too *head*) |

FOOTNOTES

[1]This paper is section 2.3 of my 1978 University of North Dakota M.A. thesis entitled The Phonology of Texmelucan Zapotec Verb Irregularity. The theoretical framework within which the paper is written is that of Stampe's natural phonology. The phonemic transcription is self-explanatory with one exception. In Texmelucan Zapotec, there is contrast between an unmodified syllable nucleus, a glottalized syllable nucleus and a laryngealized syllable nucleus. The glottalized nucleus I indicate with vowel feature [+check] and I write V'. The laryngealized nucleus I indicate with the vowel feature [+lar] and I write VV. Note the contrast in the following words: zà *lard*, zà' *corn on the cob*, zaà *beans*, yù *dirt*, yù' *house*, yuù *cargo*.

[2]For a history of early work on Zapotec tone morphophonemics see Leal (1950).

[3]The first of the seven principles is numbered R45 conforming to the numbering of rules which have been discussed in earlier sections of the thesis even though the rules are not presented here. The same is true of the numbering of processes.

[4]Stress is always stem final (section 5.) and falling tone becomes high tone on an unstressed syllable (section 1.2).

[5]John Daly has pointed out that there is a symmetry between R45 and R46, both in terms of the feature [+P] and in terms of the way in which laryngealization affects the rule, which suggests that at least historically, they were reflexes of the same principle. This principle looks something like the following:

$$\begin{bmatrix}+\text{syl}\\+\text{T hi}\\-\text{T low}\end{bmatrix}\ [+\text{cons}]_0\ \left\{\begin{bmatrix}+\text{syl}\\+\text{T hi}\end{bmatrix}\ \begin{bmatrix}+\text{syl}\\+\text{T low}\end{bmatrix}\right\} \Rightarrow \begin{bmatrix}+\text{syl}\\+\text{T hi}\end{bmatrix}\ [+\text{cons}]_0\ \begin{bmatrix}+\text{syl}\\+\text{T hi}\end{bmatrix}$$

1 2 3 1 2 3

The rule states that the feature [+T hi] moves over onto a following syllable (the exact conditions under which this happens are not clear) leaving [-T hi] in its place. R45: PROGRESSIVE PERTURBATION is an expression of this principle for the situation where the second syllable has low tone, high tone or falling tone. R46: REGRESSIVE PERTURBATION 1 is an expression of the principle for the situation where the second syllable is mid tone. Mid tone blocks the application of the rule. Thus, the feature [+T hi] occurs in a place in which it would never otherwise occur: on the syllable on which it occurs in the underlying form. For a similar rule in another Otomanguean language see Daly 1973:82.

There are several facts about the language which may at least in part be a result of this principle. First, almost all morphemes which are [+P] are underlying low tone. Second, underlying high tone is relatively rare on native morphemes, but almost all single syllable Spanish loans are [+T hi]. Third, for two syllable morphemes, low tone always occurs on the first syllable. Fourth, grammatical perturbation is always from underlying [-T hi] to [+T hi].

The above principle does not work in the synchronic analysis of TZ for several reasons. First, there are a few morphemes which are [+P] with high tone. These morphemes condition progressive perturbation without losing the [+T hi] feature so that the above principle does not work. Second, I am unable to explain derived [+T hi] of the verb as coming from the above principle or as affecting adjacent morphemes in a way in which the principle would suggest. For some verbs an underlying mid tone is perturbed to high tone and for others to falling tone. In the next section (1.2) I present the rules of grammatical perturbation. Third, single syllable Spanish loans are always [+T hi] on the surface. I take them to be [+T hi] in the UF. Yet they are all [-P]. I suspect that the fact that they are [+T hi] is a result of high pitch on the stressed syllable in Spanish. The fact that

they are [-P] I take as an indication that the above principle was no longer productive in its historical form at the time when the loans came into the language. If it had been, this [+T hi] should move over onto an appropriate following syllable. Fourth, there are morphemes with high tone that are [-P]. As I have already stated, these morphemes are rare in native words.

The difference between the above rule and the analysis presented in this section is that in the case of the latter, I do not ascribe underlying [+T hi] to the perturber and claim that this is the source of progressive perturbation. Rather, I claim that the classification of lexical items by [P] is purely ad hoc.

[6]This UF will be modified slightly in the next section.

[7]The laryngealization of {≠nyl} and {≠nà} will be discussed in section 3.

[8]Referring, of course, to the entire thesis.

[9]This fact was pointed out to me by John Alsop for Isthmus Zapotec before I ever started working on tone. His analysis of Isthmus Zapotec tone perturbation (unpublished) was an important breakthrough in understanding Zapotec tone alternations and was of considerable help to me in working with TZ.

[10]I have no examples of verbs of this class with mid tone. The abbreviations used in verb paradigms are P 'potential', H 'habitual', C 'completive', U 'unreal', N 'negative', 1p 'first person singular, 2p second person. There is a skewing between form and meaning in negative-aspect sequential limitations which is discussed in section 2.1.2 of my thesis.

[11]Underlying tone is that of the second person completive. Again, I have no examples of verbs of this class with underlying mid tone. There are also no examples of underlying [-T hi] becoming falling tone conditioned by person only.

[12]Two words, go I and grind, each have laryngealization in forms other than those represented in the examples. However, their irregularity is unique, occurring in only single words. I have therefore excluded them from this study.

## REFERENCES

Daly, John P. (1973) "Tone Sandhi and Rule Ordering in Peñoles Mixtec." Work Papers of the Summer Institute of Linguistics, University of North Dakota 17:80-105.

Leal, Mary. (1950) "Patterns of Tone Substitution in Zapotec Morphology." International Journal of American Linguistics 16:132-136.

Wang, William S-Y. (1967) "Phonological Features of Tone." International Journal of American Linguistics 37:93-105.

# SOME DISCOURSE FEATURES IN SIBERIAN YUPIK ESKIMO NARRATIVE

David C. and Marilene R. Shinen

0. Introduction
   0.1 Phonemes
   0.2 Grammar Terms
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0. This paper presents a tentative analysis of some features of narrative discourse including four discourse markers in Central Siberian Yupik Eskimo (CSY).[1]

This branch of Yupik is spoken by approximately 300 Eskimos in seven villages on the southeastern tip of the Chukotski Peninsula, USSR, and by over 800 speakers on St. Lawrence Island, Alaska, and perhaps 200 more speakers in Nome and elsewhere on the US. mainland.[2]

0.1 The phonemes of CSY are: stops p, t, k, $k^w$, q, $q^w$; voiced and voiceless continuants v, z, ɣ, $ɣ^w$, $\dot{ɣ}$, $\dot{ɣ}^w$, r, l, y, f, s, x, $x^w$, $\dot{x}$, $\dot{x}^w$, $\dot{ʁ}$, ɬ, h; voiced and voiceless nasals $\dot{m}$, n, ŋ, $ŋ^w$, $\dot{m}$, $\dot{n}$, $\dot{ŋ}$, $\dot{ŋ}^w$; and vowels i, ə, a, u.

0.2 In this paper we follow the traditional terminology found in Eskimo grammars. There are four independent verb moods: indicative, participial, interrogative, optative-imperative; and five dependent verb moods: infinitive, conjunctive, subjunctive, concessive, and precessive. The indicative, participial, and infinitive moods are especially important to parts of the analysis presented in this paper.

The indicative mood is used to make statements:

| | |
|---|---|
| unami əsχaχtəqamkən | *I shall see you tomorrow* |
| qəpχaχtuŋa | *I am working* |
| anyaχtalɣuuq | *He has a big boat* |
| yuɣəm nəɣaa kayu | *The man ate a fish* |

The participial has both verbal and nominal uses and is marked by the morphemes -lɣii for intransitive and -ka for transitive.

For the verbal use of the participial, the morphemes are followed by the final parts of the indicative endings. The verbal use is for statements having a past implication:

| | |
|---|---|
| nəɣəlɣii | *he ate* |
| nəɣəlɣiiŋa | *I ate* |
| nəɣaxkaŋa | *he ate it* |
| nəɣaxkaka | *I ate it* |

For the nominal use of the participial, the morphemes -lɣii and -ka should be regarded as nominalizing postbases. The former means "the one that V-ed" and can be used only with stems capable of taking intransitive endings, and only unpossessed noun endings can be used with it. The latter means "the one that possessor V-ed," and can only be used with stems capable of taking transitive endings, and only possessed nouns can be used with it.[3]

| | |
|---|---|
| nəɣəlɣii | *the one who ate* |
| nəɣəlɣiimən | *from the one who ate* |
| nəɣəɣkaka | *the thing I ate* |
| nəɣaxkamnən | *from the thing I ate* |

The infinitive is marked by -lu ∿ -ɬu in both transitive and intransitive and is used to express an event or state of affairs simultaneously accompanying that expressed by the independent (main) verb, and usually having the same grammatical subject as the main verb. It can often be translated like "-ing" in English, though it can also have a future or a past connotation. Another use of the infinitive is to make requests or give orders.[4]

| | |
|---|---|
| aanlun pɨyaxtuq | *going outside he walked* |
| nəɣəsqəɬuku tayɨsqaa | *he told him to come eat* |
| nəɣlutən | *Eat!* |

1. Four texts[5] were analyzed in this initial study of Yupik discourse. The text presented in this paper, "Arepaki Ama Qalu" and the other three texts first appeared in S. Rubtsova's important book Materialy po Yazuku i Folkloru Eskimosov (Materials in the Language and Folklore of the Eskimos, Leningrad, 1954).[6] An Alaska version of the Arepaki Ama Qalu story written by Grace Slwooko[7] was also studied.

The indicative, participial, imperative, optative, and infinitive verbs are marked Ind, Pr, Imp, Opt, and Inf in the text, while all other dependent verbs are marked Dep.

1.1 Free translation.

Arepaki and Qalu

(1) It is a story long ago. (2) The Siberians had many dwellings; their chief, Qalu, was cruel. (3) Also a poor woman, named Arepaki, lived (there) who had a husband and many children. (4) When the Siberians went hunting, the chief habitually stayed at the beach. (5) When the men returned home with their catch, the chief always took their game away from them. (6) He did that all the time. (7) Now at another time Arepaki's husband caught a seal. (8) Having obtained game, he returned home. (9) By the time he arrived home, it was night. (10) Then he entered (his home). (11) Entering, he called to his wife, "Arepakiiy, I got a seal!"

(12) His wife said to him, "Oh, at least your children will eat a little bit and we will have fuel." (13) Arepaki (took) the seal and entered the reindeer curtain (inner living room). (14) Then she skinned it. (15) When she finished (skinning) it, Arepaki cooked it. (16) While she was cooking it, Qalu's servant came. (17) Then he looked inside. (18) Looking inside, he said, "Qalu said: 'You give the seal which was caught'."

(19) Arepaki answered him, "We won't give it, and (besides) we are going to eat it." (20) Qalu's servant went home. (21) Arriving, he looked in. (22) Looking in, he said to him, "She will not give it, also they are going to eat it."

(23) Qalu said to him, "Go tell them. (24) At least give the seal skin." (25) And so Qalu's servant went over. (26) Looking in, he said, "At least you give the seal skin."

(27) Arepaki answered him, "We will not give it, (furthermore) we will make boots out of it." (28) And so, he went home.

(29) Arriving, he looked in. (30) Looking in, he said, "She will not give it, besides they will make boots of it."

(31) "You go tell them," he threatened, "I myself will go take it away from them." (32) And so the servant went.

(33) Arriving, he looked in. (34) Looking in, he said, "He threatened that he himself will come take it away from you (pl.)."

(35) Arepaki said to him, "Let him come and take it away from us."

(36) The man's servant went. (37) Arriving, he looked in. (38) Looking in, he said, "She said that you yourself should go take it away from them."

(39) Then Qalu, getting dressed, he himself went over. (40) Arriving, he entered the storm shed. (41) Entering, he said, "Hey, you inside! You (pl.) give your seal (to me)."

(42) Arepaki said to him, "Yes, I will give it." (43) Arepaki went out to the storm shed. (44) Going out, she grabbed the ends of Qalu's arms. (45) Then she broke his arms, broke them, broke them, down to his fingers. (46) Qalu was armless. (Without the use of his arms.)

(47) The man said to her, "Hey you! Don't tell (anyone) about me. (48) I will give you tobacco and other things." (49) Then he went out. (50) Going out, he went home. (51) Arriving, he entered (his house). (52) Then he said to his wife, "You take over to Arepaki some tobacco and other things." (53) And so his wife took over to her some tobacco and other things. (54) Then there they lived.

(55) Now at another time, when it was summer, the Siberians were playing blanket-toss. (56) Qalu went to the blanket-tossing. (57) Arriving, he climbed onto the dried walrus hide. (58) Then they hollered at him, "Aha-ha-ha-owok! (59) Qalu is the best champion, he is light on his feet." (60) Then Arepaki was angry; she hollered (to the crowd), "Hey, you (pl.)! A woman took off Qalu's arms! (61) You (pl.) kill him and take away his things." (62) And so, they killed Qalu and took away his things. (63) When Qalu died, the hunters kept their seals.

(64) That is all. (65) Tefaay!

## 1.2 Annotated text.

arəpaki ama qalu

| | | | | | |
|---|---|---|---|---|---|
| (1) | Iimnaŋuq// | (2) | unaziɣmiit | nəxɬaɣət// | umiiliɣat ayuqətaɬɣii/ |
| | *it is the aforementioned one* | | *Siberians* | *they had many houses* | *their chief* |
| | | | | | Pr *he was cruel* |

| | | | | | | |
|---|---|---|---|---|---|---|
| aatχa | qalu// | (3) | ama | kiyaχɬəχii | aynaq | akɬumaɬɣii/ |
| *his name* | *Qalu* | | *and* | Pr *one lived* | *woman* | Pr *who was poor* |

| | | | | | |
|---|---|---|---|---|---|
| uɣiiək | avaqutaχtuqaq/ | aatχa | arəpaki// | (4) | muɣutuŋəɣata/ |
| *having a husband* | *who has a family* | *her name* | *Arepaki* | | *when they hunt* |

| | | | | | |
|---|---|---|---|---|---|
| umiiiək | əsŋami | kiyaχtaqəɬɣii// | (5) | unaŋlutəŋ/ | yuyət |
| *chief* | *at beach* | Pr *he repeatedly stayed* | | Inf *catching game* | *the men* |

| | | | | | |
|---|---|---|---|---|---|
| | Dep | | Pr | | |
| | tayianyata/ | umiiiyəm | yʷayayaqəxkaŋi// | (6) | tayʷatəstaxiinaq// |
| | *when they came (home)* | *the chief* | *he took them (game) away repeatedly* | | *he did that way all the time* |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | Pr | | |
| (7) | maatən | ilaŋani | arəpakim | uyiŋa | unaŋumaiyii | nəxsaməŋ// |
| | *now* | *some other time* | *Arepaki's* | *her husband* | *he caught game* | *seal* |

| | | | | | |
|---|---|---|---|---|---|
| | Inf | | Pr | | |
| (8) | unaŋiuni/ | | tayiaasimakaŋa// | (9) | liyʷən | unuyaqaa/ |
| | *he catching game* | | *he came home with it* | | *at that time* | *it was night* |

| | | | | | |
|---|---|---|---|---|---|
| | Pr | | | | Pr |
| | kaatusimakaŋa | maŋtəyaminun// | (10) | taaxkən II | itxusimakaŋa// |
| | *he arrived with it* | *to his home* | | *next in the sequence of action* | *he entered it* |

| | | | | | |
|---|---|---|---|---|---|
| | Inf | | Pr | | Ind |
| (11) | itxuɬuku | nuliini | tuqɬuumakaŋa/ | arəpakiiy/ | nəxsaxsimaaŋa// |
| | *entering it* | *his wife* | *he called her* | *Arepaki* | *I got a seal* |

| | | | | | |
|---|---|---|---|---|---|
| | | Pr | | | |
| (12) | nuliixan | pimakaŋa/ | kaay/ | yʷaranqun | yʷaranxʷa |
| | *his wife* | *she said to him* | *Oh* | *at least* | *a little bit* |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | Ind | | Ind | | |
| | avaqutxaxtən | nəyəɬəqut/ | ama | uqixɬəqukut// | (13) | arəpakim |
| | *your family* | *they will eat* | *and* | *we will have fuel* | | *Arepaki* |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | Pr | | | | | Pr |
| nəx̣saq | | itx̣usimakaŋa | aayramun// | (14) | taaxkən II | | aftamakaŋa// |
| *seal* | | *she entered it* | *to the reindeer curtain* | | *then next in the sequence of action* | | *she skinned it* |
| | Inf | | Pr | | | Inf | |
| (15) | apəɣliɣluku/ | arəpaki | yaaɣumalɣii// | | (16) | yaaɣumaluku/ | |
| | *when she finished it* | *Arepaki* | *she cooked* | | | *cooking it* | |
| | | | Pr | | | Pr | |
| qalum | qəpx̣ax̣təŋa | taɣimalɣii// | | (17) | taaxkən II | qinəx̣simalɣii// | |
| *Qalu's* | *his worker* | *he came* | | | *then next in the sequence of action* | *he looked in* | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | Inf | Pr | | | | |
| (18) | qinəx̣ɬuni/ | pimalɣii/ | qalu | piiq/ | nəxsax̣taxax̣siŋuq | |
| | *looking in* | *he said* | *Qalu* | *he said* | *the seal which was caught* | |

| | | | | | |
|---|---|---|---|---|---|
| Imp | | Pr | Ind | | |
| tuunitəxu// | (19) arəpakim | akisimakaŋa/ | tuunaanɣitax̣put/ | xʷaŋkutatu | |
| *you give it* | *Arepaki* | *she answered him* | *we will not give it* | *we also* | |

| | | | | |
|---|---|---|---|---|
| Ind | | | Pr | |
| nəɣəɬəqax̣put// | (20) qalum | qəpx̣ax̣təŋa | aɣlaamalɣii// | |
| *we will eat it* | *Qalu's* | *his worker* | *he went (home)* | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Inf | Pr | | Inf | Obj | Pr | |
| (21) | kaaɬuni | qinəx̣simalɣii// | (22) | qinəx̣ɬuni/ | qalu | pimakaŋa/ | |
| | *arriving* | *he looked in* | | *looking in* | *Qalu* | *he said to him* | |

| | | |
|---|---|---|
| Ind | | Ind |
| tuunaanɣitaanŋuq/ | əɬŋitaɬuŋuq | nəɣəɬəqaat// |
| *she will not give it* | *they also* | *they will eat it* |

| | | Pr | | Imp | | |
|---|---|---|---|---|---|---|
| (23) | qalum | pimakaŋa/ | piyaχtuχqi// | (24) | yʷaranŋuq | |
| | *Qalu* | *he said to him* | *go tell them* | | *at least* | |

| | Opt | | | | |
|---|---|---|---|---|---|
| amiiraχaa | tayivayiitxu// | (25) | ɬaayanxʷa/ | qalum | qəpχaχtəŋa |
| *its skin* | *let them give it* | | *and so* | *Qalu's* | *his worker* |

| Pr | | Inf | Pr | | |
|---|---|---|---|---|---|
| ayiaamaiyii// | (26) | qinəxɬuni/ | pimaiyii/ | yʷaran | amiiraχaaŋuq |
| *he went* | | *looking in* | *he said* | *at least* | *its skin* |

| Imp | | Pr | Ind | |
|---|---|---|---|---|
| tuunitəxu/ | (27) | arəpakim pimakaŋa/ | tuunaanyitaχput/ | xʷaŋkutaɬu |
| *you give it* | | *Arepaki she said to him* | *we will not give it* | *we also* |

| Ind | | | Pr |
|---|---|---|---|
| kaamkəɬəqaχput// | (28) | ɬaayanxʷa/ | ayiaamaiyii// |
| *we will make boots of it* | | *and so* | *he went (home)* |

| | Inf | Pr | | Inf | Pr |
|---|---|---|---|---|---|
| (29) | kaaɬuni/ | qinəχsimaiyii// | (30) | qinəχɬuni | pimaiyii/ |
| | *arriving* | *he looked in* | | *looking in* | *he said* |

| Ind | | Ind |
|---|---|---|
| tuunaanyitaanŋuq/ | əɬŋitaɬuŋuq | kaamkəɬəqaat// |
| *she will not give it* | *they also* | *they will make boots of it* |

| | Imp | | | Ind |
|---|---|---|---|---|
| (31) | piyaχtuχqi/ | iiy ənŋuq/ | xʷaŋamnəŋ | yʷayayyaxtuxɬəqanka// |
| | *go tell them* | *he threatened* | *I myself* | *I will go take it away from them* |

| | | | Pr |
|---|---|---|---|
| (32) | ɬaaɣanxʷa | qəpχaχta | aɣlaamalɣii// |
| | *and so* | *his worker* | *he went (over)* |

| | | Pr | | | Inf | Pr |
|---|---|---|---|---|---|---|
| (33) | kaaɬuni/ | qinəχsimalɣii// | | (34) | qinəχɬuni/ | pimalɣii/ |
| | *arriving* | *he looked in* | | | *Looking in* | *he said* |

| Ind | | Ind |
|---|---|---|
| iiɣʷənŋuq | ətmənən | ɣʷaɣaɣɣaχtuxuχtəqiisi |
| *he threatened* | *he himself* | *he will go take it away from you* |

| | | Pr | Opt | Opt |
|---|---|---|---|---|
| (35) | arəpakim | pimakaŋa/ | taɣiliŋuq | ɣʷaɣaɣɣaχtuɣlinkut// |
| | *Arepaki* | *she said to him* | *let him come* | *let him take it away from us* |

| | | | Pr | | Inf | Pr |
|---|---|---|---|---|---|---|
| (36) | yuuk | qəpχaχta | aɣlaamalɣii/ | (37) | kaaɬuni/ | qinəχsimalɣii// |
| | *man* | *his worker* | *he went* | | *arriving* | *he looked in* |

| | Inf | Pr | | Imp | Imp |
|---|---|---|---|---|---|
| (38) | qinəχɬuni/ | pimalɣii/ | əɬpəniŋuq | aɣlaa/ | ɣʷaɣaɣɣaχtuχqi// |
| | *looking in* | *he said* | *you yourself* | *you go* | *you take it away from them* |

| | | | Inf | | Pr |
|---|---|---|---|---|---|
| (39) | taaxkan I | qalu | piluɣuɣluni/ | əɬmənən | aɣlaamalɣii// |
| | *soon after that* | *Qalu* | *dressing* | *he himself* | *he went (over)* |

| | Inf | Pr | | | Inf | Pr |
|---|---|---|---|---|---|---|
| (40) | kaaɬuni/ | iltχumalɣii | nataɣmun// | (41) | itəɣluni/ | pimalɣii/ |
| | *arriving* | *he entered* | *to the storm shed* | | *entering* | *he said* |

| | | Imp | | | Pr |
|---|---|---|---|---|---|
| qamaay/ | nəχsaχsi | tayivaχtəxu// | (42) | arəpakim | pimakaŋa/ |
| *hey you inside* | *your seal* | *you give it* | | *Arepaki* | *she said to him* |

| | Ind | | | | Pr |
|---|---|---|---|---|---|
| ahaa | tuunaqaqa// | (43) | arəpaki | natəγmun | aatχumalγii// |
| *yes* | *I will give it* | | *Arepaki* | *to storm shed* | *she went out* |

| | Inf | | | | Ind |
|---|---|---|---|---|---|
| (44) | atəγluni/ | qalum | ta+likək | kənləxkənkun | tuγumakək// |
| | *going out* | *Qalu's* | *his arms* | *on their ends* | *she grabbed them* |

| | | | Ind | Ind |
|---|---|---|---|---|
| (45) | taaxkən II | ta+likək | ayəmquumakək/ | ayəmquumakək/ |
| | *then next in the sequence of action* | *his arms* | *she broke them* | *she broke them* |

| Ind | | | | |
|---|---|---|---|---|
| ayəmquumakək/ | lγnəγʷaayanun | kənlaŋa// | (46) | qalu |
| *she broke them* | *to his fingers* | *until* | | *Qalu* |

| Pr | | | Pr | | Imp |
|---|---|---|---|---|---|
| ta+liγusimalγii // | (47) | yuγəm | pimakaŋa/ | ukuχsiiy// | apeγγaqunaŋa// |
| *he was without arms* | | *man* | *he said to her* | *hey you* | *don't tell about me* |

| | | | | |
|---|---|---|---|---|
| (48) | tayʷaqaməŋ | tuunə+əqamsi/ | saama sanqutm̥əŋ// | (49) taaxkən I |
| | *tobacco* | *I will give you (pl)* | *something else* | *then soon after that* |

| Pr | | Inf | Pr | | Inf |
|---|---|---|---|---|---|
| aanumalγii | (50) | aaniuni/ | aγlaamalγii// | (51) | kaa+uni/ |
| *he went out* | | *going out* | *he went home* | | *arriving* |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | Pr | | |
| lítxumalɣii// | (52) | taaxkən II | nuliini | pimakaŋa/ | arəpaki | |
| *he entered* | | *then next in sequence of action* | *his wife* | *he said to her* | *Arepaki* | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | Ind | | | |
| sanqutmən | ama | tayᵛaqamən | aɣlaatiɣu// | (53) | ɬaaɣanxᵛa | |
| *something* | *and* | *tobacco* | *take it to her* | | *and so* | |

| | | | | |
|---|---|---|---|---|
| | | | Pr | |
| nuliχan | sanqutmən | ama | tayᵛaqamən | aɣlaasimakaŋa// |
| *his wife* | *something* | *and* | *tobacco* | *she took to her* |

| | | | | | |
|---|---|---|---|---|---|
| | | | Pr | | |
| (54) | taaxkən II | tayᵛani | kiyaχsimalɣiit// | (55) | maatən |
| | *then next in the sequence of action* | *there* | *they lived* | | *now* |

| | | | | |
|---|---|---|---|---|
| | Dep | | Pr | |
| ilaŋani/ | kiiyaɣu/ | uŋaziɣmiit | uvəxtaamalɣiit// | |
| *some other time* | *when it was summer* | *Siberians* | *they played blanket toss* | |

| | | | | | |
|---|---|---|---|---|---|
| | | Pr | Pr | Inf | |
| (56) | qalu | uvəxtalɣiimun | aɣlaamalɣii// | (57) | kaaɬuni/ |
| | *Qalu* | *to blanket toss playing* | *he went* | | *arriving* |

| | | | | | |
|---|---|---|---|---|---|
| | | Pr | | | Pr |
| tanpeχəgnun | uuxsimalɣii// | (58) | taaxkən II | | araamakaŋat/ |
| *to dried walrus hide* | *he climbed* | | *then next in the sequence of action* | | *they hollered to him* |

ahahahahahaaa owok// (59) qalu Pr piniχqalɣil/ Ind uqəŋəstaaχaq//

*"ahahahahahaaa owok"* *Qalu* *he was best* *he is light weight*

(60) taaxkən I arəpaki Pr ayniqumalɣii/ Pr araamalɣii/

*then soon after that* *Arepaki* *she was angry* *she hollered*

maakuχsiiy// qalu aɣnam Ind taɬiiɣusimaa/ (61) Inf tuquɬuku/

*hey you* *Qalu* *woman* *she took off his arms!* *kill him*

sanqutaŋa Imp ɣʷayaaχtəxu// (62) ɬaaɣanxʷa/ qalu Pr tuqusimakaŋat/

*his things* *take it away* *and so* *Qalu* *they killed him*

ama sanqutaŋa Pr ɣʷayaasimakaŋat// (63) qalu Pr tuquyalɣiimi/

*and* *his things* *they took it away* *Qalu* *when he died*

muɣuŋiiχtət nəxsaχtatəŋ Pr piksaɣusimakaŋit//

*the hunters* *their seals* *they owned them*

(64) qamaxtuq// (65) təfaay//

*that is all* *tefaay!*

2. Analysis
2.1 Literary Elements
2.1.1 Outline of the Story

The folk stories studied seem to follow a similar outline. This outline is given here with particular reference to the text presented in this paper.

A. Aperture - Sentence 1 ('In a story long ago')

B. Background - Sentences 2-6 ("Tension" stated)

C. Episodes

1. Sentences 7-53

a. Resolution of "narrow tension" Sentences 45, 46
b. Episode closure - Sentence 53

2. Sentences 56-64

a. More background - Sentence 54
b. Resolution of "broader tension" Sentence 62
c. Episode closure - Sentence 63

D. Closure - Sentence 64 ('That is all')

E. Finis - Sentence 65 ('Tefaay')

Stories are traditionally begun with a formal opening, or aperture, such as iimnaŋuq *it is the aforementioned*, or a free translation might be *in a story long ago*. Some story tellers use another aperture (or a variation of it) uŋipaγaniŋuq imani *it is the aforementioned story*, roughly equivalent to *once upon a time*.

The theme of this story, as in many Yupik tales, is "tension created, tension resolved". In the background section (sentences 2-6) the tension is stated; a greedy Siberian chief, Qalu, demands all the game from the hunters, depriving them and their families of food and clothing.

In the first episode, Arepaki, a wife and mother of a large family, refused to relinquish the seal caught by her husband, and instead prepared it for their own use. In a private confrontation Arepaki faced Qalu, broke his arms, and, consequently, his power over her and her family. This we have labelled the resolution of the "narrow tension", as the broader tension (oppression over the villagers) continued as before.

In the second episode, Qalu is exposed publicly by Arepaki, and killed by the Siberian villagers, resulting in the resolution of the "broader tension", that of freeing them from Qalu's oppressive control.

The closure consists of a terminating statement qamaxtuq *it is all*. This, and the finis or final statement (tefaay!) seem to be connected with old-time traditional story-telling and are not necessarily included in stories today.

### 2.1.2 Identification of Participants

We will define major participants as those having the more active semantic roles in the plot. On the basis of the texts studied, it seems that the major participants are usually named, the next order of participants are referred to by nominals, the next order are described as to their function or relationship to a particular major participant, i.e. wife, servant, son.

Arepaki and Qalu are the major participants of this story. They are named, and are the opposing focal points of the conflict, beginning with conflict through an intermediary, and building up in one instance to direct physical challenge. It should be noted that the use of an intermediary is a common Eskimo cultural pattern. Therefore the interaction between Qalu's servant and Arepaki, which takes up a significant portion of the story, is in reality a conflict between Qalu and Arepaki.

Furthermore, it is apparent that the seal (caught by Arepaki's husband), also ranks as a special participant, perhaps in a different category from Arepaki and Qalu. Although not having an active role, the seal was the focus of tension. In the final resolution of the "broader tension", the result is that the "hunters owned their seals". (Sentence 64) In Sentence 7, Arepaki is named, her husband is referred to in free nominal form, oriented back to Arepaki, and a particular seal is introduced, referred to in nominal form. These all occur in a sentence introduced by maatan ilaŋani (narrative aperture). This particular pattern is used to stage important participants into a narrative.

### 2.1.3 Some Notes on Ranking and Status

A point of interest in this text is the gradual reduction in rank of Qalu, from being the <u>chief</u> to the humble status of being one of the <u>men</u>.

In the first episode, note Sentence 36, after Arepaki repeatedly refused to give the seal to Qalu's servant, he is called yuuk qəpxaxta *the man's servant*. Also note Sentence 47, after Arepaki broke Qalu's arms, rendering him helpless, he is referred to as yuyəm *the man*, who bribed her not to tell anyone of his condition. Thereafter to the end of the first episode, reference to Qalu is only in the form of bound

pronouns, rather than by name or by his role as chief. Therefore the name-nominal-pronominal system for ranking participants as to their importance to the story line is also used in this subtle fashion to reflect change of status.

In the second episode the villagers still recognized him as Qalu, praising his skill in the blanket toss. But at this moment of glory, Arepaki exposes him, resulting in his public disgrace and death.

## 2.2 Discourse Markers

Various devices are used in CSY to mark the different relationships that parts of a discourse have to each other and to the discourse as a whole.

### 2.2.1 Participials

A participial is the independent verb form which predominantly carries the event line in a narrative text. It has a past connotation and could be termed "the narrative past"in Yupik stories. Its frequent occurrence in places, where preliminary analysis of the language might lead one to expect the indicative, cause it to stand out all the more.

By contrast the other independent verbs are confined mostly to direct quotes and, in other texts, to summary statements as well. Example of both types of verbs and their respective uses may be seen in Sentences 11, 12, 13, 19, 20, 22, 23, 24, 26, 27, 30, 31, 34, 35, 38, 41, 42, 47, 48, 52, 61.

### 2.2.2 Episode Change Markers

maatən ilaŋani *now another time*, along with a list of other time words seen in other texts, are the markers which most frequently signal an episode change or transition from background to event line. These particular time words indicate time elapsed rather than time in the present, or consecutive time. It is this indefinite period of time lapse, in which it is assumed that actions take place that are not important to the story, which marks a shift to another episode. For examples see Sentences 7 and 55. This marker clearly segments the story into its major constituent episodes as outlined in 2.1.1.

taaxkən is another prominent member of the class of episode markers whenever its meaning is *soon after that*, indicating a somewhat shorter lapse of time than does maatən ilaŋani. For this function taaxkən will be identified as taaxkən I. The following portion of text illustrates the use of taaxkən I:

...enta / iɣnəɣənka qamaxtuki aqfatəki// xʷavək tayilaɣatit//

*Let's my sons all of them you fetch then to here let them come*

taaɣanxʷa məkəlɣii əm anəŋani aqfamakaŋi// taaxkən I

*and so boy his older brothers he fetched them then soon after that*

anəŋii tayilaɣasimalɣiit// tayilaɣasata pimakaŋi/

*his brothers they came when they came he said to them*

əlŋatat nayaxpəsi kayaatqiisi...

*very much your sister she outdid you*

2.2.3 taaxkən II

In the event line, participials with their dependent verbs relate sequences of actions with the same participants. Participials are usually separated by intervening dependent verbs. However if a dependent verb does not occur in such a position, the adjacent participials are usually separated by taaxkən II *then*. In this context the particle, taaxkən, has the meaning "next in the sequence of action", connecting one action to the one which follows. See Sentences 7-11, 13-18, and others for examples of the use of this particle in the absence of intervening dependent verbs.

Two exceptions to the above are: (1) Two participial verbs can occur next to each other when the action is tightly-knit and simultaneous as in Sentence 60: ayniqumalɣii/ araamalɣii//

*she was angry she hollered*

(2) A participial verb describing a state of being need not be separated from the succeeding participial, as in Sentences 46 and 47:

qalu ta+iɣusimalɣii// yuɣəm pimakaŋa...

*Qalu he was without arms man he said to her*

2.2.4 Consequential action marker.

+aaɣanxʷa *and so* indicates consequential action in a

sequence where a participant change occurs. That is, one participant separates himself from the particular action matrix where he finds himself and goes off to do something which is a consequence of something that happened or was said by another while he was still in that action matrix or scene. Sentences 25, 28, 53 and 62. illustrate the use of this marker.

## 3. Conclusion

This initial study of Siberian Yupik discourse has revealed some significant things to the authors. It has shown the benefit of studying a narrative by first attempting to get a "global" feel for the text before getting down to specific detail. This approach enables one to stage the plot as it unfolds and to sense how particular features of grammar, semantics, and literary elements are interacting.

The clues gained from this general approach frequently led to discoveries of the function of specific elements in a total context. These functions were not always apparent in more limited contexts or materials elicited from speakers of the language in a typical language study setting.

The application of global discourse study to texts enabled the authors to view Yupik from a new perspective rather than the more traditional approach of analyzing shorter segments of speech. As a result, the function of certain words, classes of words, and other features in Yupik, came to light.

## FOOTNOTES

[1] The authors wish to express their appreciation to Carl H. Harrison of the Summer Institute of Linguistics for directing their study of narrative discourse and for his invaluable assistance in the preparation of this paper.

[2] Krauss, Michael E., "St. Lawrence Island Eskimo Phonology and Orthography", Linguistics 152, May 15, 1975.

[3] Jacobson, Steven A. A Grammatical Sketch of Siberian Yupik Eskimo as Spoken on St. Lawrence Island, Alaska. Alaska Native Language Center, University of Alaska, Fairbanks, 1977.

[4] Ibid. page 73.

[5] These texts, "Arepaki Ama Qalu", "Yuget Tallimat", "Umiilgu", and "Meteghlluk", were taken from Krauss, Michael E. and Badten, Adalinda, Ungazighmiit Ungipaghaatangi, University of Alaska, 1971.

[6] Rubtsova was a teacher at Ungaziq (Chaplino in Russian), Chukotka, USSR from about 1937 to 1941. She recorded the stories in her book in 1940, as told by Ayveghhaq, a 26 year old Eskimo man of Ungaziiq.

[7] Slwooko, Grace. Sivuqam Ungipaghaatangi, St. Lawrence Island Legends, National Bilingual Materials Development Center, University of Alaska, Anchorage, 1977.

[8]

| | |
|---|---|
| mulunyituq | *before too long* |
| qənwat | *until* |
| wətku | *until* |
| unuyyayu | *when it was night* |
| unami | *next day/tomorrow* |
| taytaimi | *in time* |

# BIBLIOGRAPHY

Bergsland, Knut. A Grammatical Outline of the Eskimo Language of West Greenland. Oslo, 1955. (unpublished manuscript) Arctic Institute of North America. 160 p.p.

Brend, Ruth M. Advances in Tagmemics. North-Holland Publishing Co., Amsterdam, 1974. 458 p.p.

Grimes, Joseph E. The Thread of Discourse. Mouton, The Hague, Netherlands, 1975. 408 p.p.

Gudschinsky, Sarah C. "Discourse Analysis of a Mazatec Text". International Journal of American Linguistics, Vol. XXV, No. 3. pg. 139-149

Jacobson, Steven A. A Grammatical Sketch of Siberian Yupik Eskimo as Spoken on St. Lawrence Island, Alaska. Alaska Native Language Center, University of Alaska, Fairbanks, 1977. 98 p.p.

Krauss, Michael E. "St. Lawrence Island Phonology and Orthography". Linguistics 152, May 15, 1975

Krauss, Michael E. and Badten, Adelinda. Ungazighmiit Ungipaghaatangit. University of Alaska, Fairbanks, 1971. 85 p.p.

Reed, Irene; Miyaoka, Osahito; Jacobson, Steven; Afcan, Pascal; Krauss, Michael. Yup'ik Eskimo Grammar. University of Alaska, Fairbanks, 1977. 330 p.p.

Slwooko, Grace. Sivuqam Ungipaghaatangi St. Lawrence Island Legends. National Bilingual Materials Development Center, University of Alaska, Anchorage, 1977. 79 p.p.

Shinen, David C. Siberian Yupik Literacy Manual. Bureau of Indian Affairs, Nome, Alaska, 1976. 62 p.p.

Webster, Donald H. Let's Learn Eskimo. Summer Institute of Linguistics, Fairbanks, Alaska, second edition, 1968. 66 p.p.

# THE PARTICLE t'ah IN SLAVEY DISCOURSE

Carl H. Harrison and
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0. Introduction
1. Preliminary notes on discourse structure
2. i-t'ah as paragraph marker, and other features of discourse
3. The particle t'ah
   3.1 Instrument, material source, or means
   3.2 Reason or cause
4. Further notes on t'ah as a paragraph marker
5. An illustrative discourse with free translation
6. Conclusion

0. The purpose of this paper is to describe the particle t'ah[1] in its various uses within Slavey discourse.

Slavey is a member of the northern group of the Athapaskan language family, two languages of the southern group being Navajo and Apache. It is spoken by an estimated 2,500 people who live in widely-separated settlements throughout the Mackenzie River Valley in the Northwest Territories, Northeastern British Columbia, and Northwestern Alberta, Canada.

Some of the significant features of the language are its clause-final verb position, phonemic pitch, potentially long prefix strings, frequent morphophonemic elision, and wide distribution of glottalization.

Several folk narratives are represented in this analysis, and one short annotated text is included for illustrative purposes.[2]

1. Preliminary notes on discourse structure. A Slavey folk narrative consists, with occasional exceptions, of the following parts: aperture, background, narrative body, closure and finis. The narrator may digress at any point, interjecting explanatory or further background material. The illustrative text given below was consciously compressed by the narrator and for this reason aperture and background are combined into one sentence and the usual finis is absent. Otherwise, the various parts of the story contain features typical of corresponding parts in longer narratives.

The aperture is a formula of the once-upon-a-time variety. The background introduces at least the first major participant and gives information necessary for an appreciation of the narrative line. The narrative body is made up of one or more episodes, each of which is divisible into paragraphs, of which one is usually identifiable

as the climax. The closure ties up loose ends, makes a moral, summarizes or describes a final resolved state of harmony. The finis is a formula for ending stories.

2. i-t'ah as paragraph marker,[3] and other features of discourse. Each paragraph features one participant as the focus, acting alone or interacting with others. Among other features signalling paragraph or focused-participant change, two of the more reliable are the particles i-t'ah and a nominal form referring to the new participant-in-focus. The reader is referred to paragraph 2 of the story where the nominal me-h-łie is the participant brought into focus for this paragraph. it'ah can be used to segment the story into four parts.

1. Aperture - background.
2. it'ah, 1st narrative paragraph featuring the strong-eyed man.
3. it'ah, 2nd narrative paragraph featuring the strong-eared man.
4. it'ah, closure.

In the second paragraph of the narrative body, since the participant in focus switches to the companion, a clause level nominal expression is used. Throughout the rest of a paragraph, bound pronoun anaphors are the principal method for forming a continuing referential chain to the participant in focus. Fourth person bound anaphors refer to any other participant interacting with the participant-in-focus.

In narrative paragraph 1, even though another participant is given full nominal form, the 3rd person reflexive prefix de *his own* serves to mark this as a reference to someone who is not the participant-in-focus of this paragraph. Thus it is still *strong-eyes* who is talking to his companion. *Strong-eyes* is still in focus.

Occasionally a participant-not-in-focus is featured as the underlying agent in a particular action. In such case, the verb takes the passive form, featuring, once again, participant-in-focus as the one affected by the action.

Participants in a folk story as a whole are ranked. The top ranking participant (hero or protagonist) is introduced into the narrative as "man", "woman", "young man", or some such nominal expression. Second ranked participants, unless they are unrelated antagonists, are usually referred to by nominal expressions related to the first ranked participant by means of a possessor prefix forming some expression such as "his mother", "his children", or, in the case of this story, "his companion".

The participant-in-focus in a particular paragraph is referred to by a nominal expression at the beginning of a paragraph unless there has been no switch of focus from a previous paragraph (background or aside). Thus in the first narrative paragraph of the story, the focused participant is not renamed because he was named in the background.

3. Uses of t'ah other than marking paragraph.

3.1 Instrument, material source, or means. t'ah is used to mark instrument, material source, or means within a clause.

(1) ɂǫndi ɂek'ase t'ah

short story

*by means of a short story*

(2) k'i t'ah det'aa laondih thehtsı̨

birch his wings like he made

*He made wing-like things for himself from birch bark.*

3.2 Reason or Cause. t'ah is used to mark reason or cause in a reason-result or cause-result sentence.

(3) ɬaɣlii kaadi t'ah

always he says

*because he always said that*

(4) mezhaa ɬǫ t'ah

his-children many

*because he had many children*

In this position t'ah functions in a manner similar to other logical function words. Compare the following:

(5) dene yeláetth'e enide

man his-hand-sticks if

*if a man's hand gets stuck*

(6) nogha dene gha tthih náı̨'a ah'ı̨

wolverine man for trap sets has

*Wolverine sets traps to (catch) man.*

(7) náts'ezéh kuu

someone - hunts

*even-though they hunt*

(8) henih thehtsi gots'eh/ dechi yek'eh nái'a ɔlá

raft he-made and-then wood on-it stand he-made

*He made a raft and after that he stood sticks on it.*

4. Further notes on t'ah as a paragraph marker. Occasionally a speaker of the language will use t'ah alone as a paragraph marker. For some time this made a clear analysis difficult. However, other features characteristic of paragraph change are usually present to clarify the function of this particle. One of these that occurs quite frequently is a locative expression which takes the story line to a new location, a clear signal for at least a paragraph change, and possibly a new episode.

(9) t'ah yu'ɔɔ dechi ghalia kanéétɔ

over there wood thin he-looked-for

*He went over yonder to look for some thin wood.*

Intonation and pause are other cues to the status of this particle in this position.

If falling intonation and pause come immediately before the particle, it is further confirmation of a paragraph break.

E. An illustrative discourse.

1. Aperture 2. Background

| time | particle | noun | numeral | pron.-noun | adj. | verb- |
|---|---|---|---|---|---|---|
| thaa | t'ɔh | dene | łie | me-ndaa | natse | go-i-Ø- |
| *long* | *ago* | *man* | *one* | *his-eye* | *strong* | *pl.-perf.* |

intrans.
lé//
*mode-3-be*

3. Episode 1 (there is only one)

Paragraph 1

| particle | substant. | verb-trans. | locative | noun- |
|---|---|---|---|---|
| it'ah | de-h-łie | ká-h-Ø-ndi/ | yunaanee | tu- |
| | *his-with-one* | *thus-with-3-say* | *across* | *water-* |

| locative | noun | noun | postpos. | verb-intrans. | part. |
|---|---|---|---|---|---|
| naanee | ts'o | dechi | k'eh | k'e-Ø-dah/ | si |
| *across* | *fly* | *tree* | *on* | *modal-3-walk* | *ques.* |

| verb-intrans. | verb-trans. |
|---|---|
| ø-ghá-ɻ-2-nda/ | yé-h-ø-ndi// |
| *3-postpos.-imperf. mode-2-see* | *4-with-3-say* |

Paragraph 2

| particle | pron.-num | part. | pron.-noun | adj. | adv. |
|---|---|---|---|---|---|
| it'ah | me-h-łie | chu | me-dzie | natse | duye |
| | *his-with-one* | *too* | *his-ear* | *strong* | *very* |

| verb- intrans. | part. | verb-trans. | part. | demo. |
|---|---|---|---|---|
| ǫ-ø-t'e | t'ah/ | ka-yé-h-ø-ndi/ | hǫǫ/ | ezhi |
| *thus-3-is* | *since* | *thus-4-with-3-say* | *oh!* | *that* |

| part. | loc. | noun | verb-intrans. | verb-trans. |
|---|---|---|---|---|
| lǫ | yunaa | dahsɻɻ | ná-de-ø-tth'ę | dé-h-tth'e |
| *apparently* | *across* | *something* | *adv.-inceptive aspect-3-sound* | *adv.-1-hear* |

| part. | verb-trans. |
|---|---|
| lǫǫ/ | yé-h-ø-ndi// |
| *apparently* | *4-with-3-say* |

4. Closure

| part. | loc. | part. | demo. | noun | postpos. | noun | num. |
|---|---|---|---|---|---|---|---|
| it'ah | yunie | t'ǫh | đi | ndee | k'eh | dene | ǫki |
| | *past* | *ago* | *this* | *world* | *on* | *man* | *two* |

| natse | go-ɻ-ø-lé// |
|---|---|
| *strong* | *plural-perfective mode-3-be* |

Free Translation

*A long time ago there was a man with unusual eyesight. So he said to his friend, "(Say), do you see that fly walking on that tree across the lake?" Since his friend, also* [referring to his exceptional faculty] *had exceptional hearing, he said to him, "Oh, is that what I hear making a sound from across there?"*

*So in the past there were two unusual men in this world.*

5. This paper outlines certain discoveries concerning discourse structure in Slavey with particular reference to the particle t'ah. There are a number of other interesting particles and important features of discourse that are in process of yielding to various discovery procedures of the type that are brought to light in recent literature (see Bibliography). Slavey speakers use other devices to heighten or diminish focus on major participants, to create suspense, to relate time frames, and, in short, do everything necessary to make a Slavey story interesting and intelligible to a Slavey listener.

## FOOTNOTES

[1]The apostrophe is used to indicate glottal stop when it occurs between vowels and glottalization of the preceding consonant elsewhere.

[2]We are indebted to Ted Trindell of Fort Simpson, N.W.T. for the story used in this paper.

[3]The particle t'ah occurs with or without i-, the anaphor for previously recounted material. With i- it functions as a paragraph marker. Without i-, it has the various uses discussed in section 3.

## BIBLIOGRAPHY

Brend, Ruth M., 1974, Advances in Tagmemics, North Holland Linguistic Series, Mouton.

Klammer, Thomas P., and Carol J. Compton, "Some Recent Contributions to Tagmemics of Discourse."

Larsen, Helen, "Some Grammatical Features of Legendary Narratives in Ancash Quechua." Actas y Memorias del 19em Congress Int. de Americanistas.

Longacre, Robert E., "Narrative Versus Other Discourse Genre."

Wise, Mary Ruth, "Social Roles, Plot Roles, and Focus in a Nomatsiguenga Campa Myth," Actas y Memorias del 19em Congress Int. de Americanistas.

Grimes, Joseph, 1975, The Thread of Discourse, Mouton.

Gudschinsky, Sarah C., 1959, "Discourse Analysis of a Mazatec Text," International Journal of American Linguistics 25, No. 3. p. 139-146.

Li, Fang-kuei, 1964, "A Chipewyan Ethnological Text," International Journal of American Linguistics, 30.

Pike, Kenneth L., 1964, "Discourse Analysis and Tagmemic Matrices," Oceanic Linguistics, Vol. 1, Nos. 1, 5-25.

Scollon, Ronald, 1975, "Two Discourse Markers in Chipewyan Narratives," Working Papers in Linguistics, Vol. 7, No. 4:89-96, University of Hawaii.

----------, 1975, "The Sequencing of Clauses in Chipewyan Narratives," Working Papers in Linguistics, Vol. 7, No. 5:1-15, University of Hawaii.

# THE POINT-LINE DIMENSION:

## A Way of Looking at Some Aspects of the Referential System in Indonesian

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0. Introduction
1. Some pairs of forms which contrast with respect to the point-line distinction
   1.1 The determiners itu and -nya
   1.2 The prepositions di and ke
   1.3 The verbal affixes meN-+--+-i and meN-+--+-kan
   1.4 The negatives tidak and belum
   1.5 hanya and baru
   1.6 kemudian and lagi
2. Conclusion

0. There exist, in Indonesian, certain pairs of forms where, although each member of the pair can be given the same gloss in a language such as English, there is a contrast in meaning between the members of the pairs not easily captured in simple glosses. These distinctions turn out to be difficult to grasp for a person who is not an Indonesian.[1]

For convenience, we will talk about pairs of forms. A pair is made up of two forms with the same general sense. The first members of the various pairs differ from their respective partners in an analogous manner. The dimension along which they may be said to range is that of point/line. Pike (1977) refers to particle and wave for, I believe, similar purposes, which others refer to as static/dynamic, incident/process, momentary/continuous, punctual/durative. These varying terms arise from differing data. For practical purposes, the point/line distinction has been chosen here as one easy to visualize.

1. The following chart gives the pairs of forms in their contrastive opposition. Examples of each are given in the sections that follow.

| POINT | LINE |
|---|---|
| itu: 'the', has explicit previous referent | -nya: 'the', does not have explicit previous referent |
| di: 'at, in, on' relates the proposition to a static matrix | ke: 'to' relates the proposition to a direction of movement with respect to a matrix |
| meN-+--+-i: action with focus on a fixed matrix | meN-+--+-kan: action with focus on patient to whom/which motion has been imparted with respect to a fixed matrix |
| tidak: negative, with the implication that the negative state is permanent | belum: negative, with the implication that the negative state is only temporary |
| hanya: 'only', implying that that is all | baru: 'only', implying that there may/will be more |
| kemudian: [a moment] after a specific point of time | lagi: [a moment], as a continuation of an unspecific point of time |

One can see that the specific application of this point-line distinction will vary somewhat in each of the following pairs. What is salient in one pair may not be clearly apparent in another. The concept of explicit/implicit is salient in distinguishing the determiners itu/-nya (1.1); static/dynamic is salient for di/ke (1.2) and meN-+--+-i/meN-+--+-kan (1.3); absolute/open-endedness for tidak/belum (1.4) and hanya/baru (1.5); specific/unspecific for kemudian/lagi (1.6).

1.1 The determiners itu and -nya

(1) Saya membeli buku kemarin, tetapi saya tidak tahu di
*I buy book yesterday but I not know at*

mana buku itu sekarang.
*where book the now*

*I bought a book yesterday, but I don't know where the book is now.*

(2) Saya masuk ke sebuah restoran, Pelayannya cantik-
*I enter to a restaurant waitress-the pretty*

cantik.
*I went to a restaurant. The waitressses were pretty.*

In the English translation of (1) and (2) above we see that although both itu and -nya are glossed as *the*,[2] they contrast as to the explicitness/implicitness of the referent. In (1) buku itu is anchored to buku, which was previously mentioned. In (2) pelayannya is related to sebuah restoran, which, although also previously mentioned, was only the setting for a number of items that could have been singled out. One could have said, "The food was good.", or "The menu was short.", singling out any specific item from the setting implied by the word restoran. One might even consider that restoran is a kind of "script"[3] with characteristic dramatis personae, setting and plot, the plot being the types of activities associated with restoran. In that framework -nya refers to prior "script". Itu, on the other hand, refers to prior specific mention of a single object.

Another example of a script would be of waiting for a bus. If someone is standing at a bus stop I might ask him:

(3) Pukul berapa datang bisnya?
*time how come bus-the*

*What time does the bus come?*

Here the script is understood, since we are both in the middle of it and therefore do not need to mention it. -nya singles out a part of the understood script for special attention.

If someone borrows my book and keeps it too long, I might ask him:

(4) Mana bukunya?
*where book-the*

*Where is the book?*

Here the script is the shared prior knowledge and experience of the speaker and hearer. If the borrower answers me:

(5) Buku itu hilang.
*book the lost*

*The book is lost.*

the article itu is used because of my specific use of buku in the question.

1.2 The prepositions di and ke

(6) Tinggal di mana?
*stay at where*

*Where do you stay?*

(8) Ia duduk di sini tadi.
*he sit at here before*

*He was sitting here before.*

(7) Mau pergi ke mana?
*will go to where*

*Where are you going?*

(9) Datanglah ke sini.
*come-particle to here*

*Come here.*

In examples (6) and (8) we see that di relates the proposition to a static position, while ke in (7) and (9) implies movement.

1.3 The verbal affixes meN-+--+-i and meN-+--+-kan[4]

(10) John Dul melempari rumah Mary Yem dengan batu.
*throw house with stone*

*John Dul stoned Mary Yem's house (with stones).*

(11) John Dul melemparkan batu ke rumah Mary Yem.
*throw stone to house*

*John Dul threw a stone at Mary Yem's house.*

If we compare rumah in (10) and batu in (11), both of which immediately follow the verb, we see that the former is unmoved while the latter is moved by the action. The meN-+--+-i, then puts the focus on the static position of rumah, while meN-+--+-kan indicates the dynamic aspect of batu, focusing on action imparted to a patient with respect to a matrix.

Compare the follow examples:

(12) John Dul mengirimi Mary Yem buku.
*send book*

*John Dul sent Mary Yem a book.*

(13) John Dul mengirimkan Mary Yem ke Amerika.
*send to*

*John Dul sent Mary Yem to the United States.*

In (12) the meN-+--+-i form is followed immediately by Mary Yem, focusing on the unmoving matrix. In (13), however, the meN-+--+-kan form is followed by Mary Yem, which has been made to move with respect to Amerika.

1.4 The negatives tidak and belum

To say 'no' correctly in Indonesian can be a problem for someone who is foreign to the distinctions between these forms.

(14) A: Mau makan sekarang? *Do you want to eat now?*
*will eat now*

B: **Tidak.** *No.*

**Belum.** *Not yet.*

To say **tidak** means that the speaker does not want to eat at all, but to say **belum** implies that the speaker does not want to eat now, but may later on. With **belum** he does not say an "absolute" no; he still anticipates a reversal to a positive condition at some future time. To say **tidak** as an answer to the question "Are you married?" implies that the speaker will not marry at any point in his life, while **belum** would imply a hope or possibility for marriage at a later date. **Tidak**, then, is an absolute negative, while **belum** is open-ended.

1.5 **Hanya and baru**

The contrast between **hanya** and **baru** is similar to the **tidak/belum** distinction. Both **hanya** and **baru** mean *only* in (15) below, but they have a different perspective:

(15) A: **Berapa anaknya?** *How many children do you have?*
*how many children-the*

B: **Hanya lima.** *Only five.*

**Baru lima.** *Only five so far [but I may have more later].*

With **hanya** the speaker does not anticipate having any more children, but with **baru** he does.

This same distinction can be seen when they are used in response to a question concerning the length of time of a certain activity:[5]

(16) A: **Apa saudara tinggal lama di Indonesia?**
*you stay long in*

*Did you stay in Indonesia a long time?*

B: **Tidak, hanya satu tahun.**
*no only one year*

*No, just a year.*

In (16) the context involves someone who has already left Indonesia and is then questioned about his stay there. Since this stay has already terminated, **hanya** is used. Compare this to example (17) below.

(17) A: **Apa saudara sudah lama tinggal di Indonesia?**
*you already long stay in*

*Have you already stayed long in Indonesia?*

B: **Belum, baru satu tahun.**
*no only one year*

*Not yet, only one year.*

In (17) the conversation takes place in Indonesia and the answer, using **baru**, implies that the person may stay longer than the one year he has already completed. He is referring to his stay as a continuing process[6].

Note also how **tidak** in (16) contrasts with **belum** in (17), thus further indicating that the activity of (16) is considered a completed thing, while the activity of (17) is an ongoing process.

1.6 **kemudian** and **lagi**

(18) [We had an appointment with John to meet at X at 9.00, and from there we planned to go together to Y. John did not come at 9.00, so we left without him. The following day I asked him and he answered:]

**Lima menit kemudian [setelah kalian berangkat] saya datang**
*five minute after you leave I come*

*Five minutes later [after you left] I came.*

(19) [We had an appointment with John to meet at X at 9.00 and from there we planned to go together to Y. John did not come up at 9.00, and I phoned his house. His wife answered that John left fifteen minutes before, and]

**lima menit lagi John akan sampai.**
*five minute will arrive*

*In five minutes John will arrive.*

**kemudian** and **lagi** may be regarded as being different in that the former is in past tense while the latter is in future tense. With reference to point-line distinction, however, we can see that **kemudian** is concerned with a specific point of time; it is anchored to a specific point of the time **setelah kalian berangkat** *(after you left)*. The referent of **lagi**, however, is unspecific, unclear. **kemudian** indicates that one point of time occurs after the other point. Whereas **lagi**, in a sense, shows a continuance in time sequence[7].

2. While there are also other pairs of forms which contrast as to point-line distinctions in the referential system of Indonesia, these have been presented as typical of the whole field. This methodological tool of point-line is then helpful in distinguishing these closely related pairs of forms in Indonesian and suggest a way of distinguishing the semantic differences of such pairs in other languages too.

## FOOTNOTES

[1]The ideas presented in this paper can be traced back to my attempts to solve the problems encountered by my students as I taught them Indonesian under the auspices of the South East Asian Studies program at the University of Michigan and at the Indonesian Language Learning Course taught under the auspices of the Summer Institute of Linguistics at the University of North Dakota. I appreciate their efforts and struggles to learn Indonesian because it is also a second language for me since I spoke only Javanese until the age of seven.

[2]itu can also mean *that* in contrast to ini *this*, but itu often has the sense of *the* in English. -nya can also mean *his, her, its* but it can also be glossed as *the* in English. For a discussion of the anaphoric aspect of -nya see Harimurti Kridalaksana (1976).

[3]I owe the term "script" to Alton L. Becker (1977). He also led me to my understanding of this itu/-nya distinction.

[4]For further discussion of meN-+--+-i and meN-+--+-kan see Bambang K. Purwo (1978a).

[5]I am indebted to Pete Silzer for reminding me of these two examples below which help to further clarify the problem.

[6]In contrast with sudah *(already)* baru may have a different perspective. Thus, in

(i) Saya sudah satu tahun di Indonesia.

*I've already been a year in Indonesia.*

(ii) Saya baru satu tahun di Indonesia.

*I've only been a year in Indonesia.*

sudah implies that the period of one year is a long time, while baru shows that it is considered a short time.

[7]For a discussion of lagi in contrast to juga, pula, jua *(also)* see Bambang K. Purwo (1978b).

## REFERENCES

Bambang K. Purwo (1978a). The electrical power in the Indonesian meN-+-+-kan and meN-+-+-i. Unpublished paper.

---------- (1978b). Line of activity, continuity and discontinuity: a problem of the Indonesian lagi, juga, pula and jua. Unpublished paper.

Becker, Alton L. (1977). The figure a sentence makes [an interpretation of a Classical Malay sentence]. Preliminary draft for participants in the symposium on discourse and syntax, UCLA, November 1977.

Harimurti Kridalaksana (1976). -nya sebagai penanda anaphora. Mimeo; Universitas Indonesia.

Pike, Kenneth L. (1977). Static, dynamic, and relational perspectives suggested in words and phrases. In University of Michigan Papers in Linguistics, 1977, pp. 61-69.

# ON ZUNI "PASSIVES"[1]

Curtis D. Cook and Donald G. Frantz

0. Introduction and purpose
1. Definition of 'passive'in relational grammar
2. Zuni subject and object properties
   2.1 Pronominal form
   2.2. Verb agreement
   2.3 Word order
   2.4 Dependent clause markers
   2.5 Control of yam
   2.6 Object markers
3. Conclusion

0. Stout (1973) describes inflection of Zuni verbs which are made up of transitive stems plus "static" suffix -na, as exemplified in (1) and (2):

(1) a:w-akcek a:w-utte-na-'ka

pl-boy abs.pl-bite-stat-pst

*The boys were bitten.*

(2) a:-χaššik a:w-una-ti-na-'ka

pl-man abs.pl-see-inch-stat-pst

*The old men were seen.*

Exploring the utility of a "Chomskyan" approach to Zuni transitivity, she posits a "static transformation", which she likens to English passivization. The purpose of this paper is to investigate whether or not such clauses are 'passive' as this term is defined within the relational grammar (RG) framework.[2]

1. According to Perlmutter and Postal (1977), passivization is the advancement of a direct object (DO) to subject (SU), in a clause which "already" has a SU (in the preceding stratum). As a consequence of this advancement, the former SU is put en chomage (a special status), and the clause is intransitive (by definition, since there is no final DO). We will thus be testing the initial DO of sentences such as (1) and (2) for SU and DO properties.

2. Zuni subject and object properties

2.1 Clear cases of first and second person pronouns as subject in both intransitive and transitive clauses have a distinctive form; contrast

the pronouns of (3) - (6) with those of (7) - (9); the latter have the non-subject form (glossed obj):

(3) ho' i:kwa:nik'-e:-'a

1:sg:subj work-cont-pres

*I'm working.*

(4) to' a:n-uwa

2:sg:subj go-fut

*You (sg) will go.*

(5) ho' mulo:čikw(a) itc-ka

1:sg:subj cookie/cake eat-pst

*I ate the cake/cookie.*

(6) to' waccit(a) una-'ka

2:sg:subj dog see-pst

*You (sg) saw the dog.*

(7) waccita hom utte-ka

dog 1:sg:obj bite-pst

*The dog bit me.*

(8) akcek tom una-'ka

boy 2:sg:obj see-pst

*The boy saw you (sg).*

(9) akcek hom mulo:čikw(a) uk-ka

boy 1:sg:obj cake

*The boy gave the cake to me.*

If the static clauses in question are passive, a first or second person initial DO should have the final SU form. But as (10) and (11) show, they do not:

(10) hom una-ti-na-'ka

1:sg:obj see-inch-stat-pst

*I was seen.*

(11) tom utte-na-'ka

2:sg:obj bite-stat-pst

*You (sg) were bitten.*

2.2 As Stout demonstrates very nicely, Zuni verbs are marked for plurality of subject and object. The most common marker is a prefix which has allomorphs a:w- and a:- (the latter before a consonant). This prefix occurs on verbs with a plural absolutive (SU of intransitive, DO of a transitive), as illustrated in (12) - (14):[3]

(12) hon a:-te'či-ka

1:pl:subj abs.pl-arrive-pst

*We (3 or more) arrived.*

(13) a:w-akcek a:w-a:-ka

pl-boy abs.pl-go-pst

*Boys (3 or more) went.*

(14) ho' mulo:čikw(a-:) a:w-ito-ka

1:sg:subj cake-pl abs.pl-eat-pst

*I ate the cakes/cookies.*

(15) akcek to'n(a') a:w-una-ye

boy 2:pl:obj abs.pl-see-pres

*The boy sees you (pl).*

There is also a suffix with several allomorphs, including -na:w and -nap, which is triggered by a plural ergative (SU of transitive verb), as illustrated in (16) - (18):

(16) hon mulo:čikw(a-:) a:w-ito-nap-ka

1:pl:subj cake-pl abs.pl-eat-erg.pl-pst

*We ate the cakes/cookies.*

(17) a:w-akcek tom šem-e:-na:w-e

pl-boy 2:sg:obj call-cont-erg.pl-pres

*The boys are calling you (sg).*

(18) waccita hom utte-nap-ka

dog 1:sg:obj bite-erg.pl-pst

*The dogs bit me.*

Unfortunately, verb agreement provides no evidence that will help decide the passivity issue. Because it is absolutive status which is necessary for a plural nominal to trigger pluralizer a:w- ~ a:- , we cannot tell whether *cakes* in (19) is triggering a:w- because it is final SU of a passive or because it is final DO:

(19) mulo:čikw(a-:) a:w-ito-na-'ka

cake-pl abs.pl-eat-stat-pst

*The cakes were eaten.*

Nor can the ergative plural suffix help us, for the static construction in question is used only when the initial ergative is completely unspecified. Obviously, this rules out the possibility that the initial ergative will ever be plural in these sentences; consequently, even as non-passives these verbs will never take the ergative plural suffix.

2.3 The unmarked word order in Zuni is SOV, as has been amply illustrated in examples (3) - (18). Here again we get no help in deciding our question of passivization, for an initial DO will occur before the verb whether it is a final SU or final DO.[4]

2.4 Among the clause subordinators of Zuni, there are at least two which involve subject coreferentiality constraints. -n ~ -nam requires that the dependent clause which it marks have the <u>same</u> SU as the main clause, as illustrated in (20) - (23):[5]

(20) hon a:-te'či-nan, hon mulo:čikw(a-:) a:w-ito-nap-ka

1:pl:subj abs.pl-arrive-sub, 1:pl:subj cake-pl abs.pl-eat-erg.pl-pst

*When we arrived, we ate the cakes.*

(21) *hon a:-te'či-nan, a:w-akcek ho'n a:w-una-p-ka

1:pl:subj abs.pl-arrive-sub, pl-boy 1:pl:obj
abs.pl-see-erg.pl-pst

*When we arrived, the boys saw us.*

(22) waccita utte-nan, yutula-'ka

dog bite-sub, run=away-pst

*When the dog$_j$ bit him$_k$, he$_j$ ran away.*

(23) waccita utte-nan, akcek yutula-'ka

dog bite-sub, boy run=away-pst

{**When the dog bit him,* / *When he bit the dog,*} *the boy ran away.*

-p ~ -ap requires that the dependent clause to which it is attached have a SU <u>different</u> from that of the main clause, as illustrated in (24) - (27):

(24) *hon a:-te'či-p, (hon) mulo:čikw(a-:) a:w-itɑ-nap-ka

1:pl:subj abs.pl-arrive-sub, 1:pl:subj cake-pl abs.pl-eat-erg.pl-pst

*When we arrived, we ate the cakes.*

(25) hon a:-te'či-p, a:w-akcek ho'n a:w-una-p-ka

1:pl:subj abs.pl-arrive-sub, pl-boy 1:pl:obj abs.pl-see-erg.pl-pst

*When we arrived, the boys saw us.*

(26) waccita utt-ap, yutula-'ka

dog bite-sub, run=away-pst

*When the dog$_j$ bit him$_k$, {he$_k$ / *he$_j$} ran away.*

(27) waccita utt-ap, akcek yutula-'ka

dog bite-sub, boy run=away-pst

*When the dog bit him, the boy ran away.*

If Zuni static clauses are passive, then we would expect these coreferentiality constraints to be sensitive to coreferentiality with the initial DO of the putative passives. But as we see in (28) - (31), we get just the results we would expect if the initial DO is <u>not</u> the final SU:

(28) *hon a:-te'či-nan, {hon / ho'n} a:w-una-ti-na-'ka

1:pl:subj abs.pl-arrive-sub, 1:pl: {subj / obj} abs.pl-see-inch-stat-pst

*When we arrived, we were seen.*

(29) *utte-nak-nan, yutula-'ka

bite-stat-sub, run=away-pst

*When* $he_j$ *was bitten,* $\{he_j / he_k\}$ *ran away.*

(30) hon a:-te'či-p, ho'n a:w-una-ti-na-'ka

1:pl:subj abs.pl-arrive-sub, 1:pl:obj abs.pl-see-inch-stat-pst

*When we arrived, we were seen.*

(31) utte-nak-'ap yutula-'ka

bite-stat-sub run=away-pst

*When he was bitten, he ran away.*

2.5 As Cook and Frantz (to appear) demonstrate, a possessor coreferential with the SU of the governing verb is realized by anaphoric element yam (glossed poss), illustrated by (32) and (33):

(32) yam ho' ačiyann-akka apc'i-ka

poss 1:sg:subj knife-instr cut-pst

*I cut it with my knife.*

(33) yam ačiyann-akka hom apc'i-ka

poss knife-instr 1:sg:obj cut-pst

*He cut me with* {*his* / **my*} *knife.*

If the initial DO of static clauses is final SU, then it should control yam. But speakers reject sentences such as (34) if they contain yam:

(34) hom apc'i-na-'ka {*yam / hom} ačiyann-akka

1:sg:obj cut-stat-pst 1:sg:poss knife-instr

*I was cut with my knife.*

2.6 As illustrated in (36) - (40), the markers -ya' and -ona' can be used to help indicate "first object"[6] status, especially if the unmarked SOV word order is violated, as in (38):

(36) akcek Xaššik(-'on) una-'ka

boy man-obj see-pst

*The boy saw the old man.*

(37) ho' luk-ya' una-ka'

1:sg:subj this-obj see-pst

*I saw this.*

(38) a:w-akcek-'ona waccit(a) a:w-utte-nap-ka

pl-boy-obj dog abs.pl-bite-erg.pl-pst

*The dogs bit the boys.*

(39) ho' akcek-'ona mulo:čikw(a) uk-ka

1:sg:subj boy-obj cake give-pst

*I gave the cake to the boy.*

As (40) and (41) show, these suffixes cannot be attached to what are clearly final SU's:

*(40) a:w-akcek-'ona a:-te'či-ka

pl-boy-obj abs.pl-arrive-pst

*The boys arrived.*

(41) akcek waccita-ya' utte-ka

boy dog-obj bite-pst

{*The dog bit the boy. / The boy bit the dog.}

Applying this test to the initial DO's of statics, we find that they behave as final DO's:

(42) akcek-'on utte-na-'ka

boy-obj bite-stat-pst

*The boy was bitten.*

(43) a:-tačč-(on) a:w-una-ti-na-'ka

pl-father-obj abs.pl-see-inch-stat-pst

*The fathers were seen.*

3. A number of subject and object properties are discussed above. Of these, those which potentially serve as a test of whether or not Zuni clauses such as (1) and (2) are passive as defined within RG, indicate that such sentences are not passive; i.e., the evidence overwhelmingly supports an analysis in which the initial DO of such clauses is also final DO.

## FOOTNOTES

[1] See Newman (1965) for description of Zuni morphology (though we differ in a few minor details). Cook is primarily responsible for the data and its analysis, while Frantz takes major responsibility for the discussion. Abbreviations used in this paper include: abs=absolutive; cont=continuative aspect; DO=direct object; erg=ergative; fut=future; inch=inchoative; obj=objective case; pl=plural; poss=possessive; pres=present; pst=past; RG=relational grammar; sg=singular; stat=static; sub=subordinator; SU=subject; subj=subjective case; 1=first person; 2=second person; 3=third person.

[2] This is not a critique of Stout's analysis, for her description utilized a framework in which passivization can have no universal characterization, as Keenan (1975) and Perlmutter and Postal (1977) show.

[3] There are verbs which instead of a:w- or a:-, take a prefix t- ~ te-, and others which have a suppletive stem with a plural absolutive.

[4] Stout (1973) described her static transformation as a rule moving an object to the front, but this was necessary only because she assumed phrase structure rules which generated an English-like linear order of constituents. With the phrase structure rules she posited, she would have needed a transformation to place objects before the verb even in the ordinary transitive cases.

[5] As has become common practice, an asterisk marks either: an ungrammatical sentence; an interpretation that a given sentence cannot have; or a form, the presence of which would make a sentence ungrammatical.

[6] Here we are using Stout's term so as to avoid committing ourselves on the final status of initial IO's in sentences such as (39). We plan to deal with these in Cook and Frantz (in preparation).

## REFERENCES

Cook, C. and D. Frantz. To appear. "Zuni yam."

..... In preparation. "Relational grammar looks at Zuni transitivity."

Keenan, E. 1975. "Some universals of passive in relational grammar." Papers from the Eleventh Regional Meeting, Chicago Linguistic Society.

Newman, S. 1965. Zuni Grammar. University of New Mexico Publications in Anthropology, No. 14.

Perlmutter, D. and P. Postal. 1977. "Toward a universal characterization of passivization." Proceedings of the Third Annual Meeting of the Berkeley Linguistics Society.

Stout, C. 1973. "Problems of a Chomskyan analysis of Zuni transitivity." International Jornal of American Linguistics 39:4.

# THE MODALIS CASE IN IÑUPIAT

Wolf Seiler

0. Introduction
1. Basic uses of the modalis 'case'
   1.1 Instrumental
   1.2 Topical
2. Extended use of the modalis
   2.1 Indirect object advancement
   2.2 Benefactee advancement
   2.3 Comitative advancement
3. Antipassive
   3.1 Semantically governed
   3.2 Syntactically governed
      3.2.1 Causative verbs
      3.2.2 Relative clauses
      3.2.3 Participial groups
      3.2.4 Reflexives
4. Summary

0. Eskimo has a set of six post-positions which traditionally have been called a "case system" by Eskimologists. It is my purpose to demonstrate the uses of one of these, the modalis case, and to interpret them within the framework of Relational Grammar.[1] Before doing so, however, I devote the remainder of this section to a brief explication of how certain grammatical relations are indicated in Eskimo clauses.

Relational Grammar (RG) claims that there exists a fixed, universal set of 'pure' primitive grammatical relations (GR) between a verb and its nominal dependents, such as Subject-of (1), Direct-Object of (2), and Indirect-Object-of (3); nominals which have these relationships to the verb are called terms. It claims furthermore that there exists a set of 'impure' GR's, such as Instrument, Locative, Temporal, etc.; nominals which have these impure relationships to the verb are called non-terms (NT). Unlike the 'pure' GR's, these relations have independent semantic content.

The notion of termhood will become clearer through the following examples of Eskimo sentences; note that the GR's of nominals have been indicated below them:[2]

(1) Aŋuti-m umiaq qiñiġ-aa tirraġ-mi.

| man-E | boat | see-3:3 | beach-at[3] |
|---|---|---|---|
| 1 | 2 | V | LOC |

*The man sees the boat at the beach.*

(2) Aŋun savak-tuq tirraġ-mi.

man work-3 beach-at
1 V LOC
*The man works at the beach.*

These examples exemplify a fact of Eskimo grammar: the predicate and its 'nuclear' terms (1 and 2) are positioned in a basic word order 1 2 V. All other dependents seem to be less rigidly ordered, i.e. their appearance seems to be allowed anywhere in the sentence, so long as they do not break up lower level constituents.

Eskimo is an ergative language with respect to the marking of terms. An ergative is the 1 of a verb that governs the GR's of 1 and 2. In Eskimo, unpossessed ergatives in singular are marked with -m~ -(ŋ)um (This suffix is glossed 'E' and will be referred to as 'ergative case.') Ergatives in dual and plural are unmarked. Absolutives (2's, and 1's of verbs without 2's) are unmarked also.

Verb inflection is not characterized as ergative. The verb agrees in number and person with its subject in intransitive sentences; in transitive sentences the verb agrees with both subject and direct object, as marked by a portmanteau suffix which simultaneously indicates person and number of both 1 and 2.

1. Basic uses of the modalis case.

1.1 Instrumental. All clear cases of Instrument are marked with the modalis case:

(3) I[aalugru-ich akutuq niġi-gaat aluuta-mik.

child-pl Eskimo-ice cream eat-3:3 spoon-mod:sg
1 2 V INSTR
*The children eat Eskimo ice cream with a spoon.*

(4) Qaġrupia-mik Uularaġaura-m Saityak siŋ-niġ-aa.

bow+arrow-mod:sg U.-E S. shot-rs-3:3
INSTR 1 2 V
*Uularaġauraq shot Saityak with bow and arrow.*

1.2 Topical. Verbs of communication that translate 'speak', 'sing', 'preach', and even 'hear' and 'think' occur with non-terms which I will call their Topic. This Topic is marked with the modalis case, whether an indirect object is specified, as in (5), or not, as in (6).

(5) John uqaq-tuq Mary-mik Bill-mun.

J. talk-3 M.-mod:sg B.-to
*John talks to Bill about Mary.*

(6) John uqaq-tuq Mary-mik.
*John talks about Mary.*

2. The extended use of the modalis.

In the previous section, what could be called semantic functions of the modalis case were demonstrated. However, the Eskimo postpositions also have purely syntactic functions. The syntactic function of the modalis will be discussed in this section. But first it is necessary to introduce an important concept of RG: the chômeur. In Relational Grammar, a clause (at any given level) consists basically of a predicate and a number of dependents. Each of these bears a grammatical relation (GR) to the governing verb. We need to distinguish initial GR's and final GR's which correspond roughly to relations in underlying structure and surface structure, respectively, in transformational grammar. Let us again consider a basic transitive sentence in Eskimo:

(7) Mary-m John qiñiġ-aa.

M.-E J. see-3:3
1 2 V
*Mary sees John.*

It is possible to change the relations of this sentence by 2 - 1 "advancement" to give (8):

(8) John qiñi-kkau-ruq Mary-miñ,
J. see-psv-3 M.-from
1 V 1̂
*John was seen by Mary.*

In (8) the initial 2 has been advanced to assume the GR of 1; at the same time the initial 1 was demoted according to the Relational Annihilation Law (RAL) to assume the special GR of Subject-Chômeur (1̂). In other words, a chômeur is a nominal that has had its termhood usurped by another nominal.

Within RG, linear order is introduced after all GR's are determined. As is seen in (8), 1̂'s follow the verb.

The same advancement evident in (8) can take place in ditransitive clauses; compare (10), in which the initial 2 'monies' is final 1, with (9), in which the initial 1 is final 1̂:

(9) Mari-m mani-ich Paŋaliŋ-mun qaitch-ai.

Mary-E money-pl P.-to give-3:3pl
*Mary gave the monies to Pangalik.*

(10) Mani-ich Paŋaliŋ-mun qaitchi-kkau-rut Mari-miñ.

money-pl P.-to give-psv-3pl Mary-from
*The monies were given by Mary to Pangalik.*

2.1 Indirect object advancement. Another paraphrase for (9) is seen in (11):

(11) Mari-m Paŋalik maniŋ-ñik qaitchu-uti-gaa.

Mary-E P. money-mod:pl give-ben-3:3
*Mary gave Pangalik (the) monies.*

In (11), Paŋalik, the initial 3, is final 2, as evidenced by verb agreement and lack of case marking on Paŋalik as absolutive. As further evidence, observe that as a 2, Paŋalik is eligible for advancement to 1, i.e. can be subject of (12), the passive counterpart to (11):

(12) Paŋalik maniŋ-ñik qaitchu-uti-kkau-ruq Mari-miñ.

P. money-mod:pl give-ben-psv-3 Mary-from
*Pangalik was given (the) monies by Mary.*

The morpheme -uti, glossed 'ben(efactive)', functions here to register the advancement of a 3 to 2.

Observe that in (11) and (12) the initial 2 *monies* is, by the RAL, a final 2, having been put "en chômage" as a result of advancement of the 3 to 2. And in both of these sentences, *monies* is marked with the modalis case. It is the major claim of this paper that direct object chômeurs (2's) are marked by the modalis case in Iñupiat. Subsequent sections present additional evidence for this claim, which I will refer to as the object-chômeur hypothesis (OCH).

2.2 Benefactee advancement. Most activity verbs which do not take an initial 3 can optionally occur with a Benefactee (Ben) marked by the same suffix ("terminalis") as 3's. Consider the following examples:

(13) Siqupsira-m taiyuaq Paŋaliŋ-mun mumik-kaa.

S.-E verse P.-for translate-3:3
1 2 3 V
*Siqupsiraq translates a verse for Pangalik.*

(14) Siqupsira-m Paŋalik mumi-uti-gaa taiyua-mik.

S.-E P. translate-ben-3:3 verse-mod:sg
1 2 V 2
*Siqupsiraq translates a verse for Pangalik.*

(14a) Siqupsira-m qitunġa-ich mumi-uti-gai taiyua-mik.

S.-E child-pl translate-ben-3:3pl verse-mod:sg
*Siqupsiraq translates a verse for the children.*

(15) Anausu-um Miiyuk kiilaiya-uti-gaa atigi-mik.

A.-E M. sew-ben-3:3 parka-mod:sg
*Anausuk sews a parka for Miiyuk.*

Comparing (14) to (13), we see that the Ben *Pangalik* of (13) is the final 2 of (14), as evidenced by word order, lack of case suffix on Pangalik, and verb agreement (cf.(14a)). Here again we see that the verb is marked with suffix -uti. We can account for this nicely if we say that Ben's are obligatorily advanced to 3's in Iñupiat; then we need only say that -uti marks advancement of 3 to 2. Observe that the statement about obligatory advancement of Ben to 3 also accounts for the fact that Ben's in a sentence such as (13) are marked with the same suffix as 3's. But more important, the fact that in (14) and (15) the initial Ben is final 2 requires, by the RAL, that the initial 2 be a final chômeur. And we see that in (14) and (15) the initial 2 is marked with the modalis case, as predicted by the OCH. (For these benefactive sentences, the advanced form is by far the most common, that is, it is possible to use (13), but (14) is much preferred.) Consider also (16) - (18):

(16) Annasrugauraq umia-yyi-ruq.

A. boat-make-3
*Annasrugauraq builds a boat.*

(17) Annasrugaura-m Nasruuraq umia-yyi-gaa.

A.-E N. boat-make-3:3
*Annasrugauraq builds a boat for Nasruuraq.*

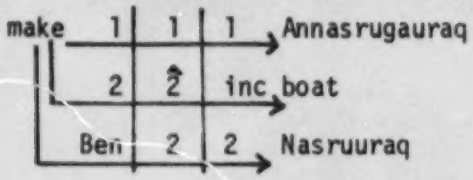
(18) Annasrugaura-m Nasruuraq aŋi-rau-mik umia-yyi-gaa.

A.-E N. big-atv-mod:sg boat-make-3:3
*Annasrugauraq builds a big boat for Nasruuraq.*

In (17) and (18) *Nasruuraq* has become a 2 by Ben -2 advancement and *boat* has been incorporated. Observe that in (18) the remainder of the initial 2, an attributive, is marked with the modalis case. This again is as predicted by the Object Chômeur Hypothesis. (The verb suffix -uti is not used when the initial 2 is noun-incorporated.) In sentences which noun-incorporate from the initial 2, the advancement of the initial Ben is preferred, as in (17) and (18).

In the subsequent discussion, I will use relational networks to illustrate the grammatical relations involved in a given sentence.

As I have said, in RG nominals are said to have particular relationships to the verb (e.g. Subject-of, Object-of). Therefore, I will indicate the relationships of nominals to the governing verb with labelled arrows pointing to the dependent. The relational 'strata', which are the RG analogue of derivational steps, are separated in my network by vertical lines. The following relational network shows the relationships of (17):




2.3 Comitative advancement. Consider the following examples:

(19) Putu aullaq-tuq.

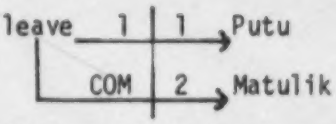
P. leave-3
*Putu went away.*

(20) Putu-m Matulik aullaq-qatigi-gaa.

P.-E M. leave-com-3:3
*Putu went away together with Matulik.*

(19) involves an intransitive predicate. However, in (20) the verb appears inflectionally as transitive, but in connection with -qatigi 'comitative'. The transitivity is also evident in the marking of the subject as ergative. The following network shows the grammatical relations for (20):

(21)




That is, (20) appears to involve obligatory Comitative advancement.

Now, consider a basically transitive verb, such as that of (22) when it takes a Comitative as in (23):

(22) Mary-m kuvraq amu-gaa.

M.-E net pull=out-3:3
*Mary pulls out the net.*

(23) Mary-m kuvra-mik amu-qatigi-gaa John.

M.-E net-mod:#g pull=out-com-3:3 J.
*Mary together with John pulls out the net.*

Again, the network for (23) involves Comitative advancement, as the

networks in (24) shows:

(24) pull-out 1 | 1 Mary
2 | ^ net
John

Initially, *net* w[illegible] 2 of *Mary's* activity. When the Comitative *John* is present, it obligatorily advances to 2; consequently, *net* is demoted by the RAL. As the OCH predicts, *net* (the 2) is marked with the modalis case. Here are two further examples:

(25) Putu-m Matulik iriq-qatigi-gaa.

P.-E M. hide-com-3:3
*Putu hides together with Matulik.*

(26) Putu-m Matulik agliqi-qatigi-gaa makpiġaa-nik.

P.-E M. read-com-3:3 book-mod:pl
*Putu reads a book together with Matulik.*

Note that the verb of (26) agrees with Matulik (the 2) rather than with *book* (the 2) (*book* in Eskimo is plural).

3. Antipassive.

3.1 Semantically governed. Most discussions of Eskimo grammar say that there are two patterns for transitive clauses, as exemplified by (27) and (28):

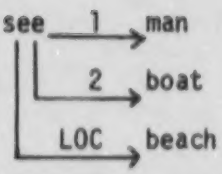
(27) Aŋuti-m umiaq qiñiġ-aa tirraġ-mi.

man-E boat see-3:3 beach-at
*The man sees the boat at the beach.*

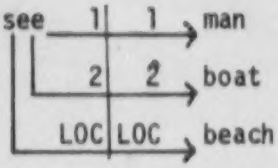
(28) Aŋun umiaġ-mik qiñiq-tuq tirraġ-mi.

man boat-mod see-3 beach-at
*The man sees a boat at the beach.*

Because of its use in sentences such as (28), Eskimologists have referred to the modalis case as an 'object marker.' However, in section 2 I argued that the main grammatical function of the modalis is to mark the 2. This claim can be extended to cover sentences such as (28). Because qiñiq- of (28) is otherwise a transitive verb, I claim that *boat* was an initial 2 but that it is not a final 2. The above examples (27) and (28) both have this initial structure:

(29) 


I propose that just in case the 2 is non-particular, a change in relations takes place so that the network for (28) is as in (30):

(30) 


So rather than saying, as is traditional in Eskimo linguistics, that the 2 of (32) is marked with the modalis case because the verb is inflected as if it were intransitive, I claim that the initially transitive verb is inflectionally intransitive because it has no final 2, the initial non-particular 2 having become a 2. (Johnson (1976) defines antipassive in just these terms.) And as predicted by the OHC, the 2 is marked with the modalis case.[7]

The verb stem for *see* in (28) is the same as that of transitive clauses such as (27). But many verbs have a slightly different form in antipassive clauses. Compare transitive (31) and antipassive (32):

(31) Mary-m taapkua kamŋ-ich tuni-gai Saltyak-mun.

M.-E those boot-pl sell-3:3pl S.-to
*Mary sold those boots to Saityuk.*

(32) Mary kamŋ-nik tunisi-ruq Saltyak-mun.

M. boot-mod:pl sell(antip)-3 S.-to
*Mary sold boots to Saityuk.*

Non-particularity is probably not the only semantic trigger for antipassive. I have seen evidence that a difference in aspect can be realized by antipassive, but have not had opportunity to investigate this as yet.

3.2 Syntactically governed antipassive.

3.2.1 Causative clauses. Various causatives exist in Eskimo. Here I will deal with two sub-types which are of particular interest to the discussion. RG posits a universal rule of Causative Clause Union (Aissen/Perlmutter, 1976:21) which states:[8]

a. The predicate of a downstairs (ds) clause becomes dead and a dependent of the upstairs (us) predicate.

b. The downstairs absolutive becomes a 2 of CAUSE.

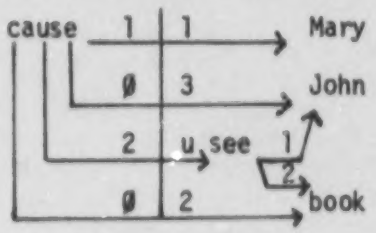
c. The downstairs ergative becomes a 3 of CAUSE.

This universal formulation accounts nicely for example (33), in which the initial ds ergative is final us 3, as indicated in network (34):

(33) Mary-m makpiġaat qiñiq-tit-kai John-mun.

M.-E book see-caus-3:3pl J.-to
1 2 V 3
*Mary shows the book to John.*

(34)




And (35) shows that what is the final 3 of (33) can be final 2 by 3 - 2 advancement[9] (in causatives, this advancement is evidently never registered by -uti 'ben'):

(35) Mary-m John qiñiq-tit-kaa makpiġaa-nik.

M.-E J. see-caus-3:3 book-mod:pl
*Mary shows John the book.*

As additional evidence for the correctness of termhood identification in these causatives, we note in passing that there are two passives possible, (36) and (37), corresponding to (33) and (35), respectively:[10]

(36) Makpiġaat qiñiq-tit-kau-rut John-mun Mary-miñ.

book see-caus-psv-3pl J.-to M.-from
*The book is being shown to John by Mary.*

(37) John makpiġaa-nik qiñiq-tit-kau-ruq Mary-miñ.

J. book-mod:pl see-caus-psv-3 M.-from
*John is shown the book by Mary.*

There are also causatives for which the final GR's of (33) are not possible, but only those of (35). Thus (38) is bad, while (39) is fine:

(38) *John-ŋum taapkua kamŋ-ich tunisi-pkaġ-ai Mary-mun.

J.-E those boot-pl sell(antip)-caus-3:3pl M.-to
*John made Mary sell the boots.*

(39) John-ŋum Mary taapku-niŋa kamiŋ-ñik tunisi-pkaġ-aa.

J.-E M. those-mod:pl boot-mod:pl sell(antip)-caus-
*John made Mary sell the boots.* 3:3

We might account for the unacceptability of (38) by saying that for such causatives 3 - 2 advancement is obligatory. But notice that, in this case at least, the causative is added to the antipassive form of *sell*, tunisi- seen also in (40):

(40) Mary kamiŋ-nik tunisi-ruq tauqsiġ-ñiaġ-viŋ-mun.

M. mukluk-mod:pl sell(antip)-3sg buy-incpt-place-where-to
*Mary sells mukluks to the store.*

The use of tunisi- in (39) can be explained if we say that causative union involving -pkaq- 'cause' requires that the ds clause be intransitive, and that antipassive is the mechanism used by the language to accomplish this. Under this analysis, the initial ds 2 is marked with modalis case in causative clauses because it was made a $\hat{2}$ downstairs. This eliminates the necessity of saying that 3 - 2 advancement is obligatory on the output of causative union in order to explain the necessary modalis case in certain causatives of transitive verbs.[11]

3.2.2 Relative clauses. Generally, a relative clause is defined as one which helps identify an index of the matrix clause. Eskimo forms a relative clause by nominalizing the verb of the relative clause. I will discuss only those relative clauses which are relevant to the topic of this paper. A subject-relative (i.e. one in which the 1 of the relative clause is coreferential with the head) which employs the modalis case is found in (41) (I have enclosed the relative clause in brackets in each example):

(41) Putu-m akka-ŋa [supput-mik tauqsiq-sau-q] iñuuniaq-tuq.

P.-E uncle-his:3d gun-mod:sg buy-NOM-sg live-3

Noorviŋ-mi

N.-in
*Putu's uncle who bought a gun lives in Noorvik.*

(42) Putu-m akka-ŋa [uu-miŋa supput-mik tauqsiq-sau-q]

P.-E uncle-his:3d this-mod:sg gun-mod:sg buy-NOM-sg

iñuuniaq-tuq Noorviŋ-mi.

live-3 N.-in
*Putu's uncle who bought this gun lives in Noorvik.*

In (41) the 2 of the relative clause is non-particular in reference. Consequently, we expect the 2 to be demoted to become a $\bar{2}$ as discussed in 3.1, and therefore marked with the modalis case, according to my OCH. In contrast, it would be expected that a 2 might be unmarked in a relative clause if it is particular in reference as in (42). But surprisingly, the modalis case is found there also. This leads me to hypothesize that subject relatives are intransitive regardless of initial transitivity. Here is an additional example:

(43) Qicha-m Kuugauraq uqauti-gaa aŋut-mik

Q.-E K. tell-3:3 man-mod:sg

(umia-tchia-mi-ñik siŋit-chi-rau-q).

boat-new-his-mod launch-antip-NOM-sg

*Qichaq tells Kuugauraq about the man who launched his new boat.*

In the relative clause of (43), we again find a particular initial 2 marked with the modalis in a subject relative. If I say that there is a constraight against transitive subject relatives in Eskimo, and that antipassive functions to satisfy this constraint, then I can account for (41) - (43).

3.2.3 Participial groups. A participial group consists of a verb participle, its modifiers and its object (if it has one). It functions as an attribute to an object of a transitive verb, describing the completion of a process leading to a state. It must be noted, too, that the initial 1 of the participial group is unspecified.

(44) Tigumi-giga qaliun ima-lik kuukpia-mik.

hold-1sg:3 cup fill-ptc:sg coffee-mod:sg
*I hold the cup filled with coffee.*

(45) John-ŋum qiñiġ-ai qiḷġich usria-igich suluuti-nik.
J.-E see-3:3pl sleds load-ptc:pl box:pl-mod:pl
*John sees the sleds loaded with boxes.*

The above examples involve an initial non-term which would in an independent clause be marked with 'terminalis' case -mun. All participial groups must involve an initial non-term. Therefore, a sentence such as (46) is unacceptable, for it has no such initial non-term:

(46) *Mary-m atug-ai puyai-ŋanik-sima-igich asria-t.

M.-E use-3:3pl clean-already-state=of-ptc:pl berry-pl
*Mary uses cleaned berries.*

So far it appears that the object of the participial group must be non-particular in reference. Consider now (47) and (48):

(47) Tigumi-giga qallun ima-lik uutinnaq-tau-mik

hold-1sg:3 cup fill-ptc:sg hot-atv-mod:sg

kuukpi-rri-kka-k-nik[10].
coffee-make-NOM-your-mod:sg
*I hold the cup filled with hot coffee you made.*

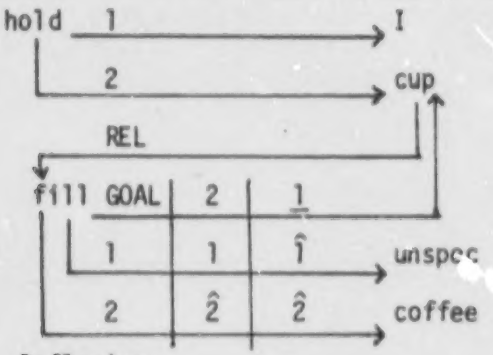
(48) John-ŋum qiñiġ-ai qiḷġich usria-lgich
J.-E see-3:3pl sleds load-ptc:pl

uku-niŋa aŋi-rau-nik suluuti-nik.
this:pl-mod:pl big-atv-mod:pl box-mod:pl
*John sees the sleds loaded with these big boxes.*

The last two examples clearly demonstrate a particular 2 in the participial group.

If I say that non-term relatives with an unspecified 1 change GR by NT- 2 advancement, subsequent passivization (because the 1 is unspecified), and are made into verbal participial groups, then I can account for examples (44) - (48). As predicted by the Object Chômeur Hypothesis, the 2 is marked with the modalis case. The following diagram shows the relational network I propose for (44):

(49)




3.2.4 Reflexives.

(50) Il-vich iiip-nik qiñiq-pich taġġaqtuut-mi.

PRO:2-2sg PRO:2sg-mod:sg see-2sg mirror-at
*Do you see yourself in the mirror?*

(51) Uvaŋ-a uvam-nik qiñiq-tuŋa taġġaqtuut-mi.

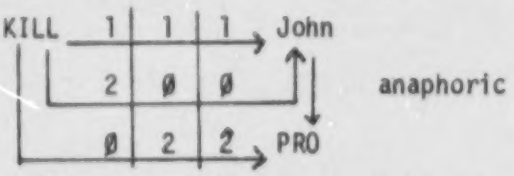
PRO:1-1sg PRO:1sg-mod:sg see-1sg mirror-at
*I see myself in the mirror.*

(52) [illegible] -mik [illegible] -uq.

RC:3-3 CO:3-mod: [illegible] d[illegible] -a-3
*He kill[illegible] himself.*

These three sentences [illegible] the following common: the logical 1 and logical 2 are co[illegible] the verb a[illegible] only with a final 1; and in addition to the [illegible] d[illegible] un in each, there is a pronoun which apparently is mar[illegible] modalis case. All of these facts can be accounted for b[illegible] rules: insertion of a pronoun to take on the 2 relation, and antipassive to put this inserted pronoun en chômage. The network for (52) will then be (53):

(53)




In (53), *John* is both initial 1 and initial 2. Eskimo deals with this by inserting as 2 a pronoun which bears the anaphoric relation to *John*. This pronoun is subsequently put en chômage.

4. The main thesis of this paper was that a major function of the modalis case in Iñupiat is to mark direct object chômeurs. This is clearest in cases where an indirect object has advanced to direct object, putting the initial direct object en chômage. The marking of 2's was also pointed out in the cases where an initial Benefactee or Comitative was final 2. This hypothesis, in conjunction with a rule of antipassive, accounts nicely for case marking and verb agreement in logically transitive clauses which are superficially intransitive. Networks were proposed to account for presence of the modalis as 2 marker in certain causative clauses, participial groups, and reflexive clauses.

It should be observed that the explanation offered here for one of the major functions of the modalis case, that it marks 2's, is possible only within RG, for only that theory defines the concept of chômeur. Thus in all versions of transformational grammar, for example, the appearance of the modalis case in paraphrases of distransitive clauses, in certain causative clauses, in antipassive clauses, and in reflexive clauses, would simply be unrelated facts.

## FOOTNOTES

[1]I wish to express my sincere thanks to Donald G. Frantz for valuable discussions on this topic in general and for extensive help in the revision of an earlier draft of this paper. It was originally written in 1976. Relational Grammar has changed a good deal since that time, so despite some terminological revision in this draft, vestiges of this paper's vintage remain.

I also wish to express deepest thanks to my Eskimo friends, without whose help I could not have conducted this research. I received help from a large number of people, among them I want to mention by name especially Pauline Harvey, Violet Pungalik, Hannah Wells, Mildred Sampson, Ethel Mills, Billy Black, and Robert Patterson.

[2]Abbreviations used in this paper:
atv - attributive, ben - benefactive, caus - causative, com - comitative, ds - downstairs, E - ergative, imper - imperative, inc - noun-incorporation, instr - instrumental, loc - locative, mod - modalis case, NOM - nominalization, PRO - pronominal base, psv - passive, ptc - participle, REL - relativization, rs - reported speech, tr - transitive, us - upstairs, 1 - subject, 2 - direct object, 3 - indirect object, 1 - first person, 2 - second person, 3 - third person (singular unless otherwise indicated), 3d - third person:different, 3s - third person:same (has also been called "fourth person"), sg - singular, du - dual, pl - plural.

[3]Case suffixes have both a sg and a pl form, but when attached to a possessed noun, the 'pl' case form is used for both singular and plural; this is true for all "cases", and will not be mentioned again.

[4]It could well be that the "topic" is initial 2 for such verbs, but that for some reason they require that it not be a final 2; if so, examples (5) and (6) belong under section 3. These verbs also allow the 3 to advance to 2; see 2.1.

[5]In the case system, -miñ and -niñ (sg and pl, respectively) is called 'ablative case'. It marks the impure GR, 'source', and I gloss it *from*. In addition, this post-position is used to mark 1 - chômeurs (1̂) which result from 2 -1 advancement (see below); in such cases I will still gloss it *from*.

[6]The so-called 'terminalis case' has the sg. -mun and the pl. -nun and is usually glossed *to, into*.

[7]Since this paper was written, Postal (1977) has proposed that antipassive involves demotion of the initial 1 to put the initial 2 en chômage, followed by advancement of the new 2 to again become a 1. So I have deleted a suggestion that "spontaneous demotion" is possible.

[8]The use of the terms 'ergative' and 'absolutive' in this rule is borrowed from Rhodes (1976).

[9]As evidenced by word order, case marking, and verb agreement.

[10]Actually, passives with specified initial 1 are rare, though grammatical. (36) and (37) would be much more natural if the last word in each were omitted.

[11]Ds antipassive provides an alternative analysis for sentences such as (35) above. This alternative, as opposed to 3-2 advancement, automatically accounts for the absence of -uti in the verb of (35).

[12]The alert reader may notice that -kka, glossed NOM in (46) is suspiciously like the morpheme glossed 'psv' of passive examples. It may well be that such object relatives are nominalized passive clauses, with the initial 1 as final possesor (E marks possessor as well as ergatives).

## REFERENCES

Aissen, J. and D. Perlmutter. 1976. "Clause Reduction in Spanish" in Papers from Second Annual Meeting of the Berkeley Linguistic Society, 1-30.

Johnson, D. 1976. "Ergativity in Universal Grammar," IBM Research Report, unpublished. To appear in Perlmutter, Studies in Relational Grammar II.

Postal, P. 1977. "Antipassive in French," in Kegl, et. al. Proceedings of the Seventh Annual Meeting of the North Eastern Linguistic Society, Cambridge.

Rhodes, R. 1976. The Morphosyntax of the Central Ojibwa Verb, University of Michigan, Ph.D. dissertation.

# GOAL ADVANCEMENT IN SOUTHERN TIWA

Barbara J. Allen

0. Introduction
1. Verb agreement
2. Goal advancement
3. Evidence that initial Goal is final SU
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## 0. Introduction

The purpose of this paper is to demonstrate within the relational grammar framework that certain intransitive verbs of motion in Southern Tiwa [1] sanction advancement of a Goal to SU,[2] and that there is verb agreement with both the initial and final SU. This hypothesis, in conjunction with various laws of relational grammar [3] and independently established facts and rules of Southern Tiwa, makes a number of predictions. These predictions are the evidence which is to follow.

First, putative cases of Goal-SU advancement will be presented. Evidence that the initial Goal is the final SU will include verb agreement and the impossibility of noun incorporation.

Constraints on noun incorporation and verb agreement will also be used to demonstrate that the initial SU is not the final SU, in accord with the Stratal Uniqueness Law.

Finally, I will argue that the final SU is not the initial SU by showing that there is agreement with the initial absolutive, just as there is in cases of IO-DO-SU agreement.

## 1. Verb agreement

As background, I will present evidence that Southern Tiwa verbs agree with a final animate subject. This agreement is indicated in the intransitive and transitive verb prefixes in the following examples:

(1) te-ml-ban
    1s-go-pst
    *I went.*

(2) a-mi-ban
2s-go-pst
*You went.*

(3) in-mĩ-ban
1d-go-pst
*We (d) went.*

(4) te-mũ-che-ban
1s-see-pass-pst
*I was seen.*

(5) men-mũ-che-ban
2d-see-pass-pst
*You (d) were seen.*

(6) i-mũ-che-ban
3p-see-pass-pst
*They were seen.*

(7) ti-mũ-ban
1s:3s-see-pst
*I saw him.*

(8) ø-mũ-ban
3s:3s-see-pst
*He saw him.*

(9) ma-mũ-ban
2p:3s-see-pst
*You (p) saw him.*

Notice that passive examples (4) through (6) show that it is the final SU with which verbs agree. Agreement with the final SU as illustrated by the two verbs above is characteristic of all transitive and intransitive verbs in Southern Tiwa. These facts will enter into the discussion of putative Goal advancement in the next two sections.

2. Goal advancement

Sentences which I claim involve Goal advancement will be present in this section.

Certain intransitive verbs of motion, like the one in (10) through (14) below, take a regular intransitive verb prefix which indicates only person and number of the initial SU (which is also the final SU). Notice that the verb does not agree with the Goal. This is to be expected, as the Agreement Law states that only nominals bearing term relations may trigger agreement. Observe also in (10) through (14) that to express Goal, a noun or pronoun is flagged by the postposition '-ay. (15) demonstrates that this flag must be present.

(10) seuanide ø-wan-ban na-'ay
man 3s-come-past me-goal
*The man came to me.*

(11) a-wan-ban na-'ay
2s-come-pst me-goal
*You came to me.*

(12) seuanide ø-wan-ban T-'ay
man 3s-come-pst you-goal
*The man came to you.*

(13) te-wan-ban T-'ay
1s-come-pst you-goal
*I came to you.*

(14) seuanide ø-wan-ban llorade-'ay
man 3s-come-pst lady-goal
*The man came to the lady.*

(15) *seuanide ø-wan-ban llorade
man 3s-come-pst lady
*The man came to the lady.*

Now I will present the sentences with putative Goal advancement. The English translations of (16)-(18) are the same as those for (10), (12) and (14); however, the arguments which follow will show that the English gloss does not reflect the final grammatical relations of the Southern Tiwa sentences.

(16) in-seuan-wan-ban
1s-man-come-pst
*The man came to me.*

(17) ka-seuan-wan-ban
2s-man-come-pst
*The man came to you.*

(18) a-seuan-wan-ban llorade
3s-man-come-pst lady
*The man came to the lady.*

(19) ki-seuan-wan-ban
1p-man-come-pst
*The man came to us.*

(20) mam-seuan-wan-ban
2p-man-come-pst
*The man came to you (pl).*

(21) am seuan-wan-ban llora-n
3p-man-come-pst lady-pl
*The man came to the ladies.*

## 3. Evidence that initial Goal is final SU

3.1 Verb agreement. By comparing examples (10)-(15) with (16)-(21), it will be argued that the initial Goal has advanced to SU in the latter set. Observe that the verb prefixes in the cases of putative Goal advancement, (16)-(21), are from a different set than those in (10)-(14). The reason for this will become apparent in section 3.5.2 when verb agreement is discussed further. Judging from the gloss of (16)-(21), it appears that the verb agrees with the Goal. However, according to the Agreement Law, a non-term, such as Goal, cannot trigger verb agreement. Therefore, I claim that the English translations of (16)-(21) do not reflect the final grammatical relations, which may be accounted for only by the Goal advancement hyphothesis. Examples (16)-(18) demonstrate quite clearly that the verb prefixes indicate the person of the putative final SU. Compare (16)-(18) with (19)-(21) for evidence that the prefixes indicate number as person of the putative final SU.

3.2 Nominal flagging and incorporation. In all clear cases, when a nominal is not either a SU or a DO, it must either be flagged or incorporated in the verb complex. Note in sentences (16)-(18) that the putative final SU is no longer flagged by the postposition -'ay as it was in (10)-(14). In the case of Ilorade in (18), it is an unincorporated noun. Sentence (22), compared with (18), shows the postposition to be ungrammatical in cases of putative Goal advancement.

(22) *a-seuan-wan-ban Ilorade
3s-man-come-pst lady-to
*The man came to the lady.*

The absence of the postposition in (18) and (21) and the non-incorporation of the unflagged initial Goal provides evidence that it is neither final SU or final DO. Previous analysis of noun incorporation (Allen and Gardiner, 1977) indicates that a final animate SU cannot be incorporated in the verb complex, as demonstrated by the follow data.

(23) seuanide ø-mi-ban
man 3s-go-pst
*The man went.*

(24) *ø-seuan-mi-ban
3s-man-go-pst
*The man went.*

(25) Ilorade ø-mu-che-ban seuanide-ba
lady 3s-see-pass-pst man-instr
*The lady was seen by the man.*

(26) *ø-Ilora-mu-cheban seuanide-ba
3s-lady-see-pass-pst man-instr
*The lady was seen by the man.*

In sentence (18), and in (27) below, the putative final SU is unincorporated. Observe that Ilora- cannot be incorporated without a change in logical relations.

(27) a-wan-ban Ilorade
3s-come-pst lady
*He came to the lady.*

(28) a-Ilora-wan-ban
3s-lady-come-pst
*The lady came to him*

**He came to the lady.*

Since Ilorade in (27) is unflagged and cannot be incorporated, I conclude that it is the final SU.

### 3.3 Evidence that initial SU is not final SU

According to the Stratal Uniqueness Law (Perlmutter and Postal 1977), no more than one nominal can bear a given term relation on a given stratum. This law, in conjunction with the Goal advancement hypothesis, predicts that the initial SU will not be the final SU in sentences such a (16)-(21). Evidence that bears out this prediction follows.

#### 3.3.1 Incorporation

Observe that the initial SU in (10), (11), and (14) is an independent word, as are all animate final SUs in Southern Tiwa. However, in (16)-(18), the English gloss is the same as for (10), (11) and (14), but the noun is incorporated into the verb complex. As was stated in section 3.2, examples (23)-(26), a final SU may not be incorporated. Therefore, the incorporation of the initial SU in (16)-(21) is evidence that it is not the final SU.[4] If it were, it would be unincorporated. Sentences (30) and (32) are ungrammatical however, because the initial SU is not incorporated.

(29) In-seuan-wan-ban
1s-man-come-pst
*The man came to me.*

(30) *seuanide in-wan-ban
man 1s-come-pst
*The man came to me.*

(31) ka-seuan-wan-ban
2s-man-come-pst
*The man came to you.*

(32) *seuanide ka-wan-ban
man 2s-come-pst
*The man came to you.*

### 3.3 Evidence that final SU is not initial SU

In this section, evidence will be presented to support the prediction that the final SU is not the initial SU in the putative advancement cases, i.e. that it would be incorrect to view these as having different initial relations than their non-advancements counterparts.

#### 3.4.1 Word order

In Southern Tiwa, a final SU which is also an initial SU always precedes the verb. The following data demonstrate this.

(33) seuanide ø-wan-ban
man 3s-come-pst
*The man came.*

(34) *ø-wan-ban seuanide
3s-come-pst man
*The man came.*

However, when the final SU is not the initial SU, it may either precede or follow the verb, as in the cases of DO-SU advancement below.

(35) Ilorade ø-mu-che-ban seuanide-ba
lady 3s-see-pass-pst man-instr
*The lady was seen by the man.*

(36) seuanide-ba ø-mu-che-ban Ilorade
man-instr 3s-see-pass-pst lady
*The lady was seen by the man.*

In the cases of putative Goal advancement also, the final subject may either precede or follow the verb. Compare (37) and (38).

(37) a-seuan-mi-ban Ilorade
3s-man-go-pst lady
*The man went to the lady.*

(38) Ilorade a-seuan-mi-ban
lady 3s-man-go-pst
*The man went to the lady.*

The fact that the final SU is not an initial SU provides a reason for this ordering option.

#### 3.4.2 Agreement

Even more convincing evidence is seen in examples (39)-(46) which demonstrate that the verb prefix indicates not only person and number of the final SU but also number[5] and noun class[6] of the initial SU. Compare the verb prefixes in (39)-(42) to see that they indicate number of the initial SU. (Prefixes are glossed final SU:initial SU.)

(39) in-seuan-wan-ban
1s:3s*i*-man-come-pst
*The man came to me.*

(40) im-seuan-wan-ban
1s-3p*i*-man-come-pst
*The men came to me.*

(41) ka-seuan-mĪ-ban
2s:3s*i*-man-go-pst
*The man went to you.*

(42) kam-seuan-mĪ-ban
2s:3p*i*-go-pst
*The men went to you.*

Examples (43)-(46) demonstrate that the verb prefix also indicates noun class of the initial SU.

(43) in-natufu-wan-ban
1s:3s*ii*-letter-come-pst
*The letter came to me.*

(44) im-kahun-wan-ban
1s:3s*iii*-box-come-pst
*The box came to me.*

(45) yu-natufu-wan-ban
1s:3p*ii*-letter-come-pst
*The letters came to me.*

(46) yu-kahun-wan-ban
1s:3p*iii*-box-come-pst
*The boxes came to me.*

Allen and Frantz (1978) have demonstrated that the same pattern of verb agreement with more than one stratum also occurs in cases of IO-DO advancement. When an IO advances to DO, the verb prefix indicates person and number of not only the final SU and final DO but also number and noun class of the initial DO. This is illustrated in (47)-(53). Compare the prefixes in (47)-(49) for evidence that the prefix indicates person and number of the final DO. (Prefixes are glossed final SU:final DO:initial DO.

(47) ka-khwian-wia-ban
1s:2s:3s*i*-dog-give-pst
*I gave you a dog.*

(48) ta-khwian-wia-ban
1s:3s:3s*i*-dog-give-pst
*I gave him a dog.*

(49) mim-khwian-wia-ban
1s:3p:3s*i*-dog-give-pst
*I gave them a dog.*

(49) and (50) show that number of the initial DO is also indicated in the verb prefix. Compare (49) with (51) for evidence that the prefix also indicates noun class of the initial DO.

(50) ben-shut-wia-ban
2s:1s:3s*ii*-shirt-give-pst
*You gave me the shirt.*

(51) bow-shut-wia-ban
2s:1s:3p*ii*-shirt-give-pst
*You gave me the shirts.*

(52) bem-kahun-wia-ban
2s:1s:3s*iii*-box-give-pst
*You gave me the box.*

(53) bow-kahun-wia-ban
2s:1s:3p*iii*-box-give-pst
*You gave me the boxes.*

Furthermore, Southern Tiwa sanctions advancement of DO-SU when the initial SU is third person and the initial DO is non-third person. Likewise when the initial SU is third person and the initial IO is non-third person, if the IO advances, it must advance all the way to SU. The resultant prefixes are a function of person and number of the final SU and number and noun class of the initial DO.

Stating the agreement rule in terms of an initial absolutive, the same pattern of agreement is seen in both GOAL-SU and in IO-DO-SU. In fact, the same verb prefixes are required in both cases. Compare the two columns below. In the left column, the prefixes indicate final SU and initial absolutive, which is initial DO. In the cases of Goal advancement, in the right column, the prefixes are a function of final SU and initial absolutive which is the initial SU.

(54) in-khwian-wia-che-ban seuanide-ba
**1s:3*si*-dog-pass-pst man-instr**
*I was given the dog by the man*

(55) in-seuan-wan-ban
**1s:3*si*-man-come-pst**
*The man came to me.*

(56) ka-khwian-wia-che-ban seuanide-ba
**2s:3*si*-dog-give-pass-pst man-instr**
*You were given a dog by the man*

(57) ka-seuan-liaw-ban
**2s:3*si*-man-go down-pst**
*The man went down to you.*

(58) im-khwian-wia-che-ban seuanide-ba
**1s:3p*i*-dog-give-pass-pst man-instr**
*I was given the dogs by the man.*

(59) im-seuan-wan-ban
**1s:3p*i*-man-come-pst**
*The men came to me.*

(60) im-kahun-wia-che-ban seuanide-ba
**1s:3s*iii*-box-give-pass-pst man-instr**
*I was given the box by the man*

(61) im-kahun-wan-ban
**1s:3s*iii*-box-come-pst**
*The box came to me.*

(62) kow-kahun-wia-che-ban seuanide-ba
**2s:3p*iii*-box-give-pass-pst man-instr**
*You were given the boxes by the man*

(63) kow-kahun-wan-ban
**2s:3p*iii*-box-come-pst**
*The boxes came to you.*

(64) a-khwian-wia-che-ban seuanide-ba
**3s:3*si*-give-pass-pst man-instr**
*You were given the dogs by the man.*

(65) a-seuan-liaw-ban liorade
**3s:3*si*-man-go down lady**
*The man came to the lady.*

(66) ow-shut-wia-che-ban seuanide-ba
**3s:3p*ii*-shirt-give-pass-pst man-instr**
*He was given the shirts by the man.*

(67) ow-shut-wan-ban liorade
**3s:3p*ii*-come-past lady**
*The shirts came to the lady.*

### 3.4.3 A 'hole' in the pattern

There are no cases of putative GOAL-SU sentences in which the initial SU is first or second person, as the following sentences illustrate.

(68) te-liaw-ban 'ĩ-'ay
**1s-go down-pst you-goal**
*I went down to you.*

(69) te-liaw-ban 'ãwa-'ay
**1s-go down-pst him-goal**
*I went down to him.*

(70) a-liaw-ban na-'ay
**2s-go down-pst me-goal**
*You went down to me.*

(71) a-liaw-ban 'ãwa-'ay
**2s-go down-pst him-goal**
*You went down to him.*

In fact, it is not even possible to posit verb prefixes involving such a combination of final SU and initial absolutive.

Previous anlayses of both DO-SU and IO-DO-SU (Allen and Frantz, in press) observe that no rule may put first or second person en chomage. Thus the

following DO-SU sentences may be posited but are ungrammatical.

(72) *te-mũ-che-ban 'T-ba
1s-see-pass-pst you-instr
*I was seen by you.*

(73) *ǿ-mũ-che-ban 'T-ba
3s-see-pass-pst you-instr
*He was seen by you.*

(74) *a-mũ-che-ban na-ba
2s-see-pass-pst me-instr
*You were seen by me.*

(75) *ǿ-mũ-che-ban na-ba
3s-see-pass-pst me-instr
*He was seen by me.*

Likewise, in cases of IO-DO-SU, the following are ungrammatical because they put first or second person en chomage.

(76) *ka-khwian-wia-che-ban na-ba
2s:3s*i*-dog-give-pass-pst me-instr
*You were given a dog by me.*

(77) *a-khwian-wia-che-ban na-ba
3s:3s*i*-dog-give-pass-pst me-instr
*He was given a dog by me.*

(78) *in-khwian-wia-che-ban T-ba
2 s:3s*i*-dog-give-pass-pst you instr
*I was given a dog by you.*

(79) *a-khwian-wia-che-ban T-ba
3s:3s*i*-dog-pass-pst you-instr
*He was given a dog by you.*

The same constraint against putting first or second person enchomage predicts that GOAL-SU will be ungrammatical if the initial SU is first or second person. The impossibility of such form further supports my analysis. If the advancement analysis of sentences such as (16)-(21) were incorrect, there would be no reason to expect the lack of similar paraphrases for sentences such as (68)-(71).

## FOOTNOTES

[1]Southern Tiwa is a Tanoan language spoken at Isleta and Sandia Pueblos in New Mexico. Data for this paper are from Isleta Pueblo only, and were gathered in conjunction with my assignment with the Summer Institute of Linguistics from October 1973 to the present. I am grateful to Isleta friends for their patient and willing help in teaching me their language and to my partner, Donna Gardiner, for her helpful insights and encouragement.

[2]The glosses and abbreviations used in this paper are as follows: SU=subject; DO=direct object; IO=indirect object; d=dual; p=plural; pass=passive; pst=past; instr=instrument; 1=first person; 2=second person; 3=third person.

[3]I am most grateful to Donald G. Frantz for introducing me to relational grammar and for guiding me in the analysis of Southern Tiwa within that framework. Without his enthusiasm, patient encouragement and understanding, and brave presumption, this paper would never have been attempted. However, he is indirectly to blame for any misapplications of the theory as he doggedly refused to co-author the paper.

[4]According to the Chomeur Law, if any rule of grammar assigns a given term relation to a nominal in a given stratum ($S_i$) which another nominal bears in the previous stratum ($S_i$-1), the nominal must bear the chomeur relation in the final stratum ($S_f$). This law predicts, then, that in cases of Goal advancement, the initial SU must bear the SU-chomeur relation in the final stratum.

Allen and Frantz (in press) indicated that DO-chomeurs are necessarily incorporated. The fact that the initial SU of the Goal advancement cases must be incorporated seems to indicate that the constraint should be stated in terms of initial absolutives which are put en chomage, rather than initial DOs.

[5]Although I have indicated person of the initial SU in the gloss, this will always be third person, due to a constraint against putting first and second person en chomage (see section 3.4.3).

[6]There are three noun classes in Southern Tiwa. Class *i* includes only animates. Classes *ii* and *iii* contain only inanimates but the basis for this categorization is not clear. Note that the prefix sets overlap in that *ip*=*iii*s; *ii*p=*iii*p; and *i*s=*ii*s. Tanoan studies refer to this as number reversal.

## REFERENCES

Allen, B. and D. Frantz. 1978. Verb Agreement in Southern Tiwa. Proceedings of the Fourth Annual Meeting of the Berkeley Linguistics Society.

_____. In press. Advancements and Verb Agreement in Southern Tiwa. To appear in Studies in Relational Grammar I (or II), David Perlmutter, ed. (This paper is a revised version of Allen and Frantz, 1978.)

_____. In preparation. Passive in Southern Tiwa.

_____ and D. Gardiner. 1977. Noun Incorporation in Isleta. Work Papers of the Summer Institute of Linguistics, University of North Dakota. Vol. 21, ed. John P. Daly

Perlmutter, D. and P. Postal. 1977. Toward a Universal Characterization of Passivization. Proceedings of the Third Annual Meetings of the Berkeley Linguistics Society.

# NOTES ON DIUXI MIXTEC TONE

John P. Daly

0. Introduction
1. Major differences of two analyses
2. Morphophonemic rules
3. Phonetic rules
4. The two analyses contrasted

0. In this paper I give a brief description of a reanalysis of the tone system of Diuxi Mixtec previously analyzed by Eunice Pike and Joy Oram (1976). Their analysis is heavily influenced by their conception of probable phonetic manifestations of tone, whereas my analysis is more influenced by morphophonemic considerations. Giving more attention to morphophonemic considerations in determining tone phonemes makes possible a simpler account of the morphophonemics of tone. This account, however, is not at the expense of phonetic simplicity but is compatible with a phonetically reasonable and relatively simple account of allophonic processes.[1]

1. Pike and Oram (P & O) posit two tones, high and low, and one degree of stress. Stress is said to be contrastive on the ultimate syllable of stems but to be present always on the penultimate syllable and always absent on the antepenultimate syllable. A monosyllabic enclitic occurs both with and without stress depending on whether the preceding morpheme conditions its presence or not.

In all previous descriptions of Mixtec languages it has been claimed that there is only one stress to a word. Stress is said to occur on the first syllable of bisyllabic morphemes (the most common pattern) with monosyllabic morphemes being unstressed. In my view Diuxi Mixtec, like other Mixtec languages, has only one (grammatically predictable) stress to a word and that which P & O call contrastive stress should not be identified with the predictable stress. Furthermore, their nonpredictable stress should not be restricted to the ultimate syllable of stems and to monosyllabic enclitics, but it should be recognized as occurring on any syllable, including the predictably stressed ones.

Predictable stress I will call simply stress. Non-predictable stress which P & O recognize, as well as other instances of the same phenomenon, is of a different sort and should be recognized as a feature of tone. This feature, which can be called Modification,[2] combines with the feature High that is needed for the contrast between high and low tones to give four tones: modified high ('H), unmodified high (H), modified low ('L) and unmodified low (L).

In the reanalysis, every configuration of the four tones is possible on a sequence of two syllables with the exception that a modified low tone is never followed by a modified low tone. Whenever tone modification would otherwise occur on each of two low-tone syllables, the second tone loses its modification. This reduces the number of possible tone combinations on bisyllabic morphemes to fifteen. Of these, seven patterns are basic: HL, LL, 'LL, L'L, L'H, 'L'H and H'H; the rest are derived.

I will give next my version of the morphophonemics of tone involving pairs of bisyllabic morphemes,[3] then give my version of the phonetics of tone and finally make some further comparisons between the two analyses.

2. Table I gives combinations of tone patterns found in sequences of two morphemes.[4] Each of the morphemes at the top of a column is followed by each of the morphemes at the end of a row. The tones of each pair of morphemes are given at the intersection of the columns and rows. Given in parentheses are examples of tone combinations not given in the chart of P & O, an adaptation of which I will give later.

TABLE I SEQUENCES OF BISYLLABIC MORPHEMES

| | | -A | | | +A | | | |
|---|---|---|---|---|---|---|---|---|
| I | II | III | IV | V | VI | VII | | |
| LL | 'L L | L'H | H'H | H'H | 'L L | L L | | |
| ++ | diko | ba?a | uu | koo | ǰuči | ka?nu | | |
| *one* | *is sold* | *good* | *two* | *four* | *small* | *large* | | |
| | | 'L'H (ii?i) *rooster* | | L'H (d+?+) *wife* | L'L (žuči) *knife* | H L (čuju) *fly* | | |
| LL HL | 'LL HL | LH LL ('LH) | HH LL | H'H HL~ HH 'HL | 'LL HL~ 'LL'HL | LL HL~ LL'HL (HL) | H L čaka *fish* | A |
| LL 'LL | 'LL HH | LH 'LL ('LH) | HH HL | HH HL (LH) | 'LL HL (LL) | LL 'LL (HL) | 'L L ielu *hat* | B |
| LL LL | 'LL HH | LH LL ('LH) | HH HL | HH HL (LH) | 'LL 'HL (LL) | LL 'LL (HL) | L L k+t+ *animal* | C |
| LL L'L | 'LL HH | LH L'L ('LH) | HH H'L | HH H'L (LH) | 'LL 'H'L (LL) | LL 'LL (HL) | L'L L'L žuči/ dito *knife uncle* | D |
| LL L'H | 'LL H'H | LH L'H ('LH) | HH L'H | HH 'H'H (LH) | 'LL H'H (LL) | LL 'L'H (HL) | L 'H L'H tatna/ d+?+ *medicine wife* | E |
| LL'L'H | 'LL H'H | LH 'L'H ('LH) | HH 'H'H | HH 'H'H (LH) | 'LL 'H'H (LL) | LL 'L'H (HL) | 'L'H 'L'H ii?i/ kuči *rooster pig* | F |

In column I appear the basic tones of each tone class following the numeral one. In each of the other columns one or more of the tones undergo a change. Notice that the only regressive perturbation is the loss of tone modification word finally. Every such syllable loses its modification except that in V A modification appears on the word final syllable if it does not transfer to the next following syllable. All other cases of tone perturbation are progressive. In column II both tones may be changed. In VII D modification is lost on the second syllable. In all other cases of progressive perturbation, the first tone only is changed.

The morpheme classes which condition change in a following morpheme are differentiated partially by their tone patterns and partially arbitrarily . I mark the classes represented in I-IV as [-A] and the ones in V-VII as [+A] so as to differentiate between arbitrary subclasses of morphemes with identical tone patterns but different perturbing power. In the informal statement of the morphophonemic rules I will refer to the numbers I-VII and make use of the feature [A] in the formal rules.

The feature [Derived] appears in one rule only for the purpose of identifying a tone which has a derived feature specification that regains the specification it had in its basic form. In all other cases a rule applies to basic feature specifications only.

## Modification Addition

A low tone becomes modified (a) following class VII morphemes, (b) following class VI morphemes if the low tone is followed by a low tone and (c) following class V morphemes if the low tone is followed by a high tone.

(1) Modification Addition

$$\begin{bmatrix} -\text{Mod} \\ -\text{High} \end{bmatrix} \rightarrow [+\text{Mod}] \; / \; \left\{ \begin{array}{lll} [-\text{Mod}] & \begin{bmatrix} -\text{Mod} \\ +\text{A} \end{bmatrix} & \#____ \\ \begin{bmatrix} -\text{High} \\ \alpha\text{Mod} \end{bmatrix} & \begin{bmatrix} -\text{High} \\ -\alpha\text{Mod} \\ +\text{A} \end{bmatrix} & \#____[-\text{High}] \\ & \begin{bmatrix} +\text{High} \\ +\text{A} \end{bmatrix} & \#____[+\text{High}] \end{array} \right\}$$

| | | | | |
|---|---|---|---|---|
| VII C | L L | | L L | |
| | ka?nu | + | k+t+ | |
| | *large* | | *animal* | |
| | L L | | 'L L | |
| | ka?nu | | k+t+ | Modification Addition |
| VI D | 'L L | | L'L | |
| | luči | + | žuči | |
| | *small* | | *knife* | |
| | 'L L | | 'L'L | |
| | luči | | žuči | Modification Addition |
| | 'L L | | 'H'L | Surface (see rule 5) |
| V E | H'H | | L 'H | |
| | koo | + | tatnạ | |
| | *four* | | *medicine* | |
| | H'H | + | 'L 'H | |
| | koo | | tatnạ | Modification Addition |
| | HH | | 'H 'H | |
| | koo | | tatnạ | Surface (see rules 3 and 5) |

Modification Adjustment

A high tone is optionally modified following classes V-VII (A of V-VII). If the high tone becomes modified, tone modification on an immediately preceding syllable is lost (V A).

(2) Modification Adjustment 1 (opt)

[+A] # [+High] ---> [-Mod] # [+Mod]

| | | | | |
|---|---|---|---|---|
| V A | H'H | | H L | |
| | koo | + | čaka | |
| | *four* | | *fish* | |
| | HH | | 'H L | |
| | koo | | čaka | Modification Adjustment 1 or |
| | H'H | | H L | |
| | koo | | čaka | Surface |
| VI A | 'L L | | H L | |
| | luči | + | čaka | |
| | *small* | | *fish* | |
| | 'L L | | 'H L | |
| | luči | | čaka | Modification Adjustment 1 or |
| | 'L L | | H L | |
| | luči | | čaka | Surface |

Word final tone modification is lost before any tone not specified in the structural description of rule 2. It is not lost phrase finally.

(3) Modification Adjustment 2

[+Mod] --> [-Mod] / _____ # [+Tone]

Disjunctively ordered in respect to Modification Adjustment 1

| | | | | |
|---|---|---|---|---|
| V C | H'H | | L L | |
| | koo | + | k+t+ | |
| | *four* | | *animal* | |
| | HH | | L L | |
| | koo | | k+t+ | Modification Adjustment 2 |
| IV *E* | H'H | | L 'H | |
| | uu | + | tatnạ | |
| | *two* | | *medicine* | |
| | HH | | L 'H | |
| | uu | | tatnạ | Modification Adjustment 2 |
| | HH | | H 'H | |
| | uu | + | tatnạ | Surface (see rule 4) |

Tone Raising

A low tone or a sequence of two low tones becomes unmodified high tone(s) following class II morphemes. Notice that the two tones which are already high retain their modification ( II E,F). The morphemes which cause this change are a subclass of 'LL morphemes, possibly consisting entirely of verbs in the continuative aspect with this tone pattern.

(4) Tone Raising 1

$$\begin{bmatrix} -\text{High} \end{bmatrix} \quad \left( \quad \begin{bmatrix} -\text{High} \end{bmatrix} \right) \quad \rightarrow \quad \begin{bmatrix} +\text{High} \\ -\text{Mod} \end{bmatrix} \quad \left( \begin{bmatrix} +\text{High} \\ -\text{Mod} \end{bmatrix} \right)$$

$$/ \begin{bmatrix} +\text{Mod} \end{bmatrix} \qquad \begin{bmatrix} -\text{High} \\ -\text{A} \end{bmatrix} \qquad \#\ ____$$

| | | | | |
|---|---|---|---|---|
| II B | 'L L | | 'L L | |
| | diko | + | lelu | |
| | *sell* | | *hat* | |
| | 'L L | | H H | |
| | diko | | lelu | Tone Raising 1 |

| | | | | |
|---|---|---|---|---|
| II F | 'L L | | 'L'H | |
| | diko | + | lI?i | |
| | *sell* | | *rooster* | |
| | 'L L | | H'H | |
| | diko | | lI?i | Tone Raising 1 |

A low tone becomes high tone following classes IV-VI. In one instance a basic low appears as low in the surface (IV E). This will be provided for by allowing the rule that changes low to high to operate without exception and by changing the derived high to low again by a rule of tone lowering. This rule will apply to the derived high and to basic high tones.

(5) Tone Raising 2

$$[\text{-High}] \longrightarrow [\text{+High}] \;/\; \left\{ \begin{matrix} [\alpha\ \text{Mod}]\ [\text{-}\alpha\text{Mod}\ \text{+A}] \\ [\text{+High}]\ [\text{+High}\ \text{-A}] \end{matrix} \right\} \quad \#\ ____$$

| | | | | |
|---|---|---|---|---|
| IV F | H'H | | 'L'H | |
| | uu | + | lI?i | |
| | *two* | | *rooster* | |
| | HH | | 'L'H | |
| | uu | + | lI?i | Modification Adjustment 2 |
| | H H | | 'H'H | |
| | uu | + | lI?i | Tone Raising 2 |
| V C | H'H | | L L | |
| | koo | + | k+t+ | |
| | *four* | | *animal* | |
| | HH | | L L | |
| | koo | | k+t+ | Modification Adjustment 2 |
| | HH | + | H L | |
| | koo | | k+t+ | Tone Raising 2 |
| V B | H'H | + | 'L L | |
| | koo | | lelu | |
| | *four* | | *hat* | |
| | HH | + | 'L L | |
| | koo | | lelu | Modification Adjustment 2 |
| | HH | + | 'H L | |
| | koo | | lelu | Tone Raising 2 |
| | HH | | H L | |
| | koo | | lelu | Surface (see rule 7) |

## Tone Lowering

A basic high tone becomes low tone following classes III and IV. A high tone derived by tone raising from L'H morphemes returns to low (IV E).

(6) Tone Lowering

$$[+\text{High}] \longrightarrow [-\text{High}] \;/\; \begin{bmatrix} +\text{High} \\ -\text{A} \end{bmatrix} \quad \# \quad \left\{ \begin{bmatrix} \overline{\quad} \\ -\text{Derived} \end{bmatrix} \quad \begin{bmatrix} \overline{\quad} \\ +\text{Derived} \\ -\text{Mod} \end{bmatrix} \; [+\text{High}] \right\}$$

| | | | | | |
|---|---|---|---|---|---|
| III | A | L'H | | H L | |
| | | ba?a | + | čaka | |
| | | *good* | | *fish* | |
| | | L H | | H L | |
| | | ba?a | | čaka | Modification Adjustment 2 |
| | | L H | | L L | |
| | | ba?a | + | čaka | Tone Lowering |
| IV | E | H'H | | L 'H | |
| | | uu | | tatnạ | |
| | | *two* | | *medicine* | |
| | | HH | | L'H | |
| | | uu | | tatnạ | Modification Adjustment 2 |
| | | HH | | H 'H | |
| | | uu | | tatnạ | Tone Raising 2 |
| | | HH | | L 'H | |
| | | uu | | tatnạ | Tone Lowering |

## Modification Deletion

Tone modification is lost if followed by a low tone and preceded by classes IV - VI (B IV - VI).

(7) Modification Deletion

$$[+\text{Mod}] \longrightarrow [-\text{Mod}] \;/\; \left\{ \begin{matrix} [\alpha\text{Mod}] & \begin{bmatrix} -\alpha\text{Mod} \\ +\text{A} \end{bmatrix} \\ [+\text{High}] & \begin{bmatrix} +\text{High} \\ -\text{A} \end{bmatrix} \end{matrix} \right\} \; \# \; \underline{\quad} \; [-\text{High}]$$

| | | | |
|---|---|---|---|
| V B | H'H | 'L L | |
| | koo | lelu | |
| | *four* | *hat* | |
| | HH | 'L L | |
| | koo | lelu | Modification Adjustment 2 |
| | HH | 'H L | |
| | koo | !elu | Tone Raising 2 |
| | HH | H L | |
| | koo | lelu | Modification Deletion 1 |

Tone modification on a low tone following a modified low tone is lost (VII D).

(8) Modification Deletion 2

$$\begin{bmatrix}-\text{High}\\+\text{Mod}\end{bmatrix} \dashrightarrow [-\text{Mod}] \;/\; \begin{bmatrix}-\text{High}\\+\text{Mod}\end{bmatrix} \text{——}$$

| | | | |
|---|---|---|---|
| VII D | L L | L'L | |
| | ka?nu | žuči | |
| | *large* | *knife* | |
| | L L | 'L'L | |
| | ka?nu | žuči | Modification Addition |
| | L L | 'L L | |
| | ka?nu | žuči | Modification Deletion 2 |

3. In specifying the phonetic variants of the four tones two new features [Mid] and [Downstep] will be introduced. [Mid] pairs with [High] to give: [+High, -Mid] a phonetically high tone, [+High, +Mid] a phonetically mid tone, [-High, +Mid] a phonetically falling low tone and [-High, -Mid] a phonetically low tone. The feature specification [+ Mod] is found in combination with [+High, -Mid] and [+High, +Mid] to add a short downward glide to a high or mid tone. [+Mod] in combination with [-High, -Mid] has no phonetic effect, the tone being at low pitch. [+Mod] never occurs in combination with [-High, +Mid] . The feature specification [+Downstep] occurs only in combination with [+High, -Mid, -Mod] and [+High, -Mid, +Mod] and specifies the unmodified or modified high tone as high in relation to following tones but as mid in relation to preceding tones. Thus, a down-stepped high will be lower than a preceding high but the same height as a following high and higher than a following mid or low.

A high tone is downstepped following a high tone plus one or more unmodified low tones or following pause plus one or more unmodified low tones. Elsewhere a high tone is phonetically high.

(9) Downstep

$$[+\text{High}] \dashrightarrow [+\text{Downstep}] \,/\, \left\{\begin{matrix}[+\text{High}]\\ //\end{matrix}\right\} \begin{bmatrix}-\text{High}\\-\text{Mod}\end{bmatrix}_1^n \text{——}$$

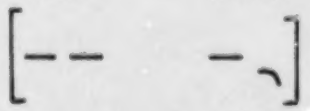
VII C

| H L | H L |
|---|---|
| čuju | čaka |
| *fly* | *fish* |

The low tone of čuju is mid (see 10) and the high tone of čaka is downstepped to the pitch of the preceding tone.

V D

| L H | H'L |
|---|---|
| d+ʔ+ | dito |
| *wife* | *uncle* |



The low tone of the LH pattern is mid (see 10) and the high tone is downstepped to the level of the preceding tone. The high tone of the H'L pattern is on the same pitch as the preceding downstepped high and the modified low tone is a mid tone in relation to the preceding high and ends in a short downglide.

One or more unmodified low tones are falling low tones (a) when preceding a modified low tone in a stressed syllable and (b) when preceding pause.

(10) Unmodified Low Tone

$$\begin{bmatrix}\text{-High}\\ \text{-Mod}\end{bmatrix} \rightarrow [\text{+Mid}] \;/\; \underline{\quad} \begin{bmatrix}\text{-High}\\ \text{-Mod}\end{bmatrix}_{o}^{n} \left\{ \begin{bmatrix}\text{-High}\\ \text{+Mod}\\ \text{+Stress}\end{bmatrix} \right\}_{//}$$

In a series of unmodified low tones each successive tone is lower than the preceding one. A phrase final low tone may fall to extra low.

I F

| LL | 'L'H |
|---|---|
| ↓↓ | ˥˩ʔ˥ |

I C

| LL | L L |
|---|---|
| ↓↓ | k+t+ |

A modified low tone is phonetically low in a stressed syllable.

(11) Modified Low Tone

$$[\text{-High}] \longrightarrow [\text{-Mid}] \;/\; \left[\begin{array}{l}\overline{\phantom{xx}}\\ \text{+Mod}\\ \text{+Stress}\end{array}\right]$$

| LL | 'L'H | |
|---|---|---|
| ŧŧ | ˥˩˥ | ˧ ˩ ˥ |
| *one* | *chicken* | |

In all contexts not specified in the preceding two rules a low tone is mid. The rules for the variants of low tone can be combined into the one rule (12).

(12) Low Tone

$$[\text{-High}] \longrightarrow \left\{\begin{array}{ll} [\text{+Mid}] & / \left[\begin{array}{l}\overline{\phantom{xx}}\\ \text{-Mod}\end{array}\right] \left[\begin{array}{l}\text{-High}\\ \text{-Mod}\end{array}\right]_0^n \left\{\left[\begin{array}{l}\text{-High}\\ \text{+Mod}\\ \text{+Stress}\end{array}\right] // \right\} \\ [\text{-Mid}] & / \left[\begin{array}{l}\overline{\phantom{xx}}\\ \text{+Mod}\\ \text{+Stress}\end{array}\right] \\ \left[\begin{array}{l}\text{+High}\\ \text{+Mid}\end{array}\right] & \end{array}\right\}$$

Contexts in which low becomes mid for example are:

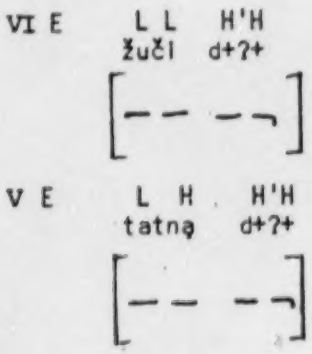
VI E L L H'H
žuči d+?+
˧ ˧ ˧ ˥

VI E 'L L H'H
žuči d+?+
˩ ˧ ˥ ˥

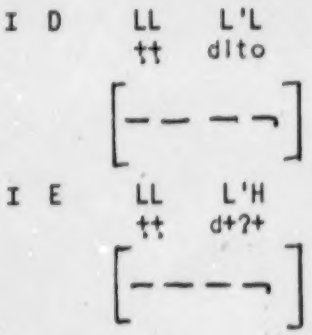
I F LL L'L
ŧŧ žuči
˧˧ ˧ ˥

The phonetic rules sometimes have the effect of neutralizing the contrast between high and low. In some of those contexts in which a low becomes mid, a high is lowered to the same pitch level either by being downstepped itself or being preceded by a downstepped tone.

Compare the second tone of žuči in VI E with the second tone of tatnǫ in V E. The unmodified low tone and the unmodified high tone are on the same pitch.




Compare the second tone of dito in I D with the second tone of d+?+ in I E. The modified low tone and the modified high tone are on the same pitch.




4. Table II is an adaptation of the chart of bisyllabic morphemes which appears in P & O. I have rearranged rows and columns from what they were in P & O in order to facilitate comparison between the two analyses. I have also changed the segmental and tonal notations to conform to my own and have united with a ligature each sequence of two tones related to a single underlying vowel. Where the phonetic data I elicited differs from P & O's, I include in parentheses the differences as they might interpret them, although these differences are not crucial to either analysis. Table I is reproduced along with Table II.

DIUXI MIXTEC TONE

TABLE I SEQUENCES OF BISYLLABIC MORPHEMES

| I | II | -A III | IV | V | +A VI | VII | | |
|---|---|---|---|---|---|---|---|---|
| LL | 'L L | L'H | H'H | H'H | 'L L | L L | | |
| ++ | diko | ba?a | uu | koo | luči | ka?nu | | |
| *one* | *is sold* | *good* | *two* | *four* | *small* | *large* | | |
| | | 'L'H (ll?l) *rooster* | | L'H (d+?+) *wife* | L'L (žuči ) *knife* | H L (čuju) *fly* | | |
| LL HL | 'LL HL | LH LL ('LH) | HH LL | H'H HL~ HH 'HL | 'LL HL~ 'LL'HL | LL HL~ LL'HL (HL) | H L čaka *fish* | A |
| LL 'LL | 'LL HH | LH 'LL ('LH) | HH HL | HH HL (LH) | 'LL HL (LL) | LL 'LL (HL) | 'L L lelu *hat* | B |
| LL LL | 'LL HH | LH LL ('LH) | HH HL | HH HL (LH) | 'LL 'HL (LL) | LL 'LL (HL) | L L k+t+ *animal* | C |
| LL L'L | 'LL HH | LH L'L ('LH) | HH H'L | HH H'L (LH) | 'LL 'H'L (LL) | LL 'LL (HL) | L'L L'L žuči/ dito *knife uncle* | D |
| LL L'H | 'LL H'H | LH L'H ('LH) | HH L'H | HH 'H'H (LH) | 'LL H'H (LL) | LL 'L'H (HL) | L 'H L'H tatna/ c+?+ *medicine wife* | E |
| LL'L'H | 'LL H'H | LH 'L'H ('LH) | HH 'H'H | HH 'H'H (LH) | 'LL 'H'H (LL) | LL 'L'H (HL) | 'L'H 'L'H ll?l/ kuči *rooster pig* | F |

TABLE II SEQUENCES OF BISYLLABIC MORPHEMES

(adapted from Pike and Oram)

| I | II | III | IV | V | VI | VII | | | |
|---|---|---|---|---|---|---|---|---|---|
| LL | L H | H'H | H'H | H'H | L L | H H | | | |
| †† | diko | ba?a | uu | koo | luči | ka?nu | | | |
| *one* | *is sold* | *good* | *two* | *four* | *small* | *large* | | | |
| HH HL | LL HL | H'H LL (H H) | H'H LL (H H) | H'H HL | LL HL | LL HL | H L čaka | *fish* | A |
| HH LH | LL HH | H'H LH (H H) | H'H HL (H H) | H'H HL (H H) | LL HL | LL LH | L H lelu | *hat* | B |
| HH HH | LL HH | H'H LL (H H) | H'H HL (H H) | H'H HL (H H) | LH H̄LL | LL LH | H H k+t+ | *animal* | C |
| HH H'H | LL HH | H'H L'L (H H) | H'H HL (H H H'L) | H'H HL (H H H'L) | LH H̄L'L | LL LH | H'H žuči | *knife* | D |
| HH H'H | LL H'H | H'H L'L (H H) | H'H L'L (H H) | H'H H̄L'H (H H) | LL H'H | LL L'H | H 'H tatnạ | *medicine* | E |
| HH L'H | LL H'H | H'H L'H (H H) | H'H H̄L'H (H H) | H'H H̄L'H (H H) | LL H̄L'H | LL L'H | L'H ll?l | *rooster* | F |

In making comparisons one is struck with how radically different tone assignment is in the two systems. For example, a sequence of four low tones in the new analysis is considered a sequence of four high tones in P & O (I C). In the new analysis a low tone is either a level tone or a falling tone, but in P & O a high tone has these characteristics (their falling tone being called allophonic downdrift). P & O state, "A sequence of high tones has allophonic downdrift when the sequence ends with a non-stressed high... A sequence of high tones does not have allophonic downdrift, however, (1) when the final syllable has a stressed high tone..., and (2) when following a sequence of low tones... (There is downdrift, however, when following a single low tone...)" (pp 324-325)

Some of the differences between P & O and the new analysis arise from my allowing for the neutralization of the contrast between low and high in some contexts and doing this by phonetic rules. For example, in the new analysis a sequence of level tones with a glide on the final tone may be LL L'H or LL L'L, whereas in P & O such a sequence is always HH H'H (I D, E).

Some other differences in the two analyses arise from differences in the phonetic data. In my data no word-final tone modification occurs on the frame morphemes in III-V with the exception of V-A. It is possible that free variation between modified and unmodified tones accounts for the differences in transcription. Should the transcription of P & O be adopted there is no need for my rule 3.

A further difference in the phonetic data is that I have tone modification on a final low-tone syllable in IV D and V D. I am convinced that modification does occur here. It could be included in P & O with a possible increase in generality in their system.

In the remainder of this paper I will compare the two morphophonemic systems and bring in phonetic differences only where they are relevant.

In the new analysis the tones of the frame morphemes undergo no change apart from the differences in modification already mentioned. In P & O there are additional changes in four of the seven columns.

In column I of P & O, the pattern LL becomes HH, whereas in the new analysis the difference is a phonetic one in that a high tone is downstepped to the level of a preceding low tone.

In column II of P & O, the frame LH becomes LL whereas in the new analysis the tones are phonemically the same. It appears that the phonemic difference in P & O is necessary because of their definition of the phonetic alternates of high and low. In isolation their tones are LH and not LL since a final high contrasts with low in this environment; before a high tone their tones are LL and not LH since the second tone is lower than the next high tone. P & O state that the second tone of LL varies between low and raised low. In my data it is always mid.

In column VI of P & O, the pattern LL becomes LH in VI C,D. I recorded no phonetic difference.

In column VII of P & O, the pattern HH becomes LL (VII) whereas in the new analysis it is always LL. Notice that basic HH becomes LL in VII but basic LL becomes HH in I. In the new analysis there is no morphophonemic alternation in the tones of the frame morpheme in either case, but there is a difference in the phonetic variants of the tones.

In comparing the two analyses in respect to substitution items, I will consider each column separately as P & O do in giving their generalizations about tone sandhi.

In column I, each of the morphemes appears with its basic tones. In P & O, two patterns are tonally the same and arbitrarily differentiated on the basis of the changes they undergo in sandhi (I D, E), whereas in the new analysis the two tone patterns are phonemically distinct. The contrast between the two patterns is neutralized by the phonetic rules.

In column II of P & O, a morpheme initial low tone becomes high tone and tone modification on the second high tone of II D is lost. This loss of tone modification has no explanation in P & O. In the new analysis, however, it is completely regular. The tone which loses its modification is a derived high tone, and like any other derived high tone in II, is unmodified.

For column III, P & O list the changes of HL to LL, HH to LL, and H'H to L'L. The generalization which could have been made is that a high tone or a sequence of high tones becomes low tone(s). The generalization made in the new analysis is that a morpheme initial high tone becomes a low tone (III A); other differences are allophonic.

For column IV, P & O state that none of the nouns retain their basic form, and then they give a list of the tone changes:
HL to LL, LH to HL, HH to HL, H'H to HL, H'H to L'L and L'H to HL'H. Three patterns become HL, but there is no explanation as to why LH, HH and one H'H all yield this particular pattern, but another H'H yields the pattern L'L. In the new analysis the first three patterns all involve a low tone becoming a high tone with one instance of tone modification loss (IV B). The fourth pattern has no change from the underlying tones, although by raising the low to high and returning it to low there is a slight increase in generality (rules 5 and 6). It is necessary for P & O to introduce a tone glide in the derived form of L'H. This pattern becomes HL'H, whereas in the new analysis a low simply becomes a high as in the other patterns. Notice that in P & O the first tone, the second tone or both tones undergo change, whereas in the new analysis only the first tone undergoes change.

In column V of P & O, three patterns become HL (V B-D) and two become HL'H (V E,F). There is no explanation as to why the tone patterns group in this way rather than in some other way. In the new analysis a low tone is changed to a high tone in every case (V B-F); modification is lost before a lo tone in (V B) and modification is added before a high tone in (V E

In column VI, the contrast between the two systems is essentially the same as in column V.

In column VII of P & O, an initial high tone becomes a low tone in all but VII, and tone modification is lost on one H'H pattern (VII D) but not on the other H'H pattern (VII E). In the new analysis every initial low tone becomes modified. The loss of modification on the second syllable of VII D is conditioned by the modified low tone on the preceding syllable.

## FOOTNOTES

[1] I am indebted to Joy Oram and Albertha Kuiper for obtaining native speakers of Diuxi Mixtec so I could check out details of the reanalysis and collect additional tone data.

My study of a closely related language, Peñoles Mixtec, has contributed important insights into the tone system of Diuxi Mixtec , which shows both interesting similarities and dissimilarities to the tone system of Peñoles Mixtec.

For a description of the Peñoles Mixtec tone system which is more comprehensive than the one given here for Diuxi Mixtec, see Daly 1977.

[2] Tone Modification comes from Nancy Woo (1969) and is used in my description of Peñoles Mixtec tone. In conjunction with low tone, modification in a stressed syllable is manifested as a level tone in both languages, but in conjunction with high tone it is manifested as downward glide at the end of a level tone in Diuxi Mixtec and as a rising tone in Peñoles Mixtec.

[3] In this paper I will confine my attention to sequences of two bisyllabic morphemes and omit discussion of monosyllabic morphemes described by P & O, inasmuch as sequences of two bisyllabic morphemes manifest the essential features of the tone system. I have collected data on sequences of three or more morphemes, not mentioned by P & O, which indicate that the perturbing power of a derived pattern sometimes corresponds to the underlying tones and sometimes to the derived tones.

* The basic pattern H'H is not represented among the morphemes occurring in second position since no noun has been found to have this tone pattern. In other contexts I have been able to determine that there are basic H'H patterns, such as in the numeral four, but have yet to find frames which would give the patterns derived from H'H after each of the classes represented in I-VII.

## REFERENCES

Daly, John P. 1977. A Problem in Tone Analysis. Studies in Otomanguean Phonology, ed. by William R. Merrifield, 3-20. SIL Publications in Linguistics 54. Summer Institute of Linguistics and the University of Texas at Arlington.

Pike, Eunice V. and Joy Oram. 1976. Stress and Tone in the Phonology of Diuxi Mixtec. Phonetica 33:321-333.

Woo, Nancy 1969. Prosody and Phonology. Unpublished doctoral dissertation. Massachusetts Institute of Technology.

# ASPECTS OF SERI PHONOLOGY

Stephen A. Marlett

0. Introduction
1. Consonant and vowel lengthening
2. The round consonants
3. Nasalization
4. Processes affecting /m/
5. The chameleon consonant
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0. Introduction. An abstract analysis of Seri, a Hokan language of northern Mexico, might posit the following systematic phonemes.[1]

Consonants

| lab | dent | alv | retrofl alv-pal | pal | vel | back vel (uvular) | glot |
|---|---|---|---|---|---|---|---|
| p | t | | | | k | | ʔ |
| f [ɸ] | | s ɬ | ʂ | | x | χ | |
| m | n | | | | | | |
| w | | l | | y | | | |

Vowels

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| i | iː | | | | | | | | |
| | | | | | | o | oː | | |
| e [æ] | eː [æː] | | | | | a | aː | | |

In the following sections I will discuss the presence of the surface segments W, $k^w$, $\chi^w$, ŋ, and nasalization, and the status of the phoneme /w/ in present-day Seri. I will also discuss other prominent aspects of Seri phonology, especially those features in which this analysis differs from that of Moser and Moser 1965.

1. Consonant and vowel lengthening. A striking feature of the Seri language is what Moser (1978) has called a "staccato delivery" since consonants and vowels are noticeably lengthened under certain conditions.[2] The following sentence illustrates the pervasiveness of lengthened segments. (Forms written without brackets are intermediate representations.)

(1) i-ʔámok k? iti t-om ma-χ i-ʔí:saχ tintika t-átaχ-χ →

[iʔám:o:k?ititom:aχiʔí:s:a:χtintikatát:a:χ]

*When she would lie down at night, when her spirit would go, ...*

The long i in [iʔí:s:a:χ] is an underlying long vowel. The long m in [tom:aχ] is the result of the juxtaposition of two morphemes, one ending in m, one beginning with m. Non-nasal geminate consonant clusters and also clusters such as kkʷ tend to degeminate except when both consonants are in the same word and the second consonant is stem-initial; in the latter case they are realized as single long consonants. These rules are stated informally and illustrated below.

(2) Degemination: $C_i \rightarrow \emptyset \; / \; C_i \; \begin{matrix} Z \\ [-segment] \end{matrix} \; —$

[-nas]

where Z ≠ #

(3) Coalescence: $C_i \; C_i \Rightarrow [+lng] \; \emptyset$
$1 \quad 2 \qquad\quad 1 \quad 2$

(4) i?p-p-á:p+ → [i?pá:p+] *when I am cold*

s-?ámok-ka?a → [s?ám:o:ka?a] *it will be night*

po-pánš-χ-χ → [popánšχ] *if he runs*

χépe kom m-í:pe → [χép:e:kom:í:p:e] *The sea is good (calm).*

šiχ k-káp → [šiχk:áp] *thing that flies, i.e. airplane*

To avoid confusion, I will henceforth represent long consonants which result from (3) as clusters.[3]

Consonant lengthening. A consonant is lengthened if it follows a stressed vowel nucleus of a certain type and precedes a vowel. The amount of lengthening is greater with a higher degree of stress. The stressed vowel nucleus may be composed of a single vowel (long or short) or a short vowel followed by a short high front vowel (i). This is obviously a restriction on total nucleus length that is difficult to capture notationally.[4] There is also a condition that the consonant be in the same word as the stressed vowel and not be a suffixal consonant. The rule is given in (5).

(5) Consonant Lengthening: $C \rightarrow [+lng] \; / \; \underset{\langle -lng \rangle}{\acute{V}} \left\langle \begin{matrix} V \\ [-lo \\ -bac \\ -lng] \end{matrix} \right\rangle \; — \; V$

Conditions: 1) The C must be in the same word as the stressed V.
2) The C may not be a suffixal C.

This formalization represents rules (6) and (7) below which are illustrated individually. The need for the conditions is illustrated in (8) and (9).

(6) $C \rightarrow [+lng] / \begin{matrix} \acute{V} \\ [-lng] \end{matrix} \quad \begin{matrix} V \\ \begin{bmatrix} -lo \\ -bac \\ -lng \end{bmatrix} \end{matrix} __ V$

| | | |
|---|---|---|
| k-á-iko-t | → [káik:o:t] | *kill for someone (sg. punct., nom.)* |
| k-óipa+-im | → [kóip:a:+im] | *be elliptical (sg. iter., nom.)* |
| ?-áonam | → [?áonam] | *hat* |
| k-apói:n-im | → [kapói:nim] | *wring out (sg. iter., nom.)* |
| k-ká:iχ-im | → [kká:iχim] | *scrape away (sg. iter., nom.)* |
| k-áa+-im | → [káa+im] | *play (sg. iter., nom.)* |

(7) $C \rightarrow [+lng] / \acute{V} __ V$

| | | |
|---|---|---|
| k-á:t-im | → [ká:t:im] | *cook in ashes (sg. iter., nom.)* |
| k-á:fap-im | → [ká:f:a:pim] | *arrive (sg. iter., nom.)* |
| k-kápapχ-im | → [kkáp:a:pχim] | *crack with teeth (sg. iter., nom.)* |
| ?áχox | → [?áχ:o:x] | *shore* |

(8) Condition: The consonant must be in the same word as the stressed vowel.

| | | |
|---|---|---|
| mó-k-a-t | → [mók:a:t] | *come (pl. punct., nom.)* |
| ?ant po-fí: ta | → [?ant pofí: ta] | *when it is tomorrow* |
| ?ái kop | → [?ái kop] | *the wind* |

(9) Condition: The consonant may not be a suffixal consonant.

| | | |
|---|---|---|
| mó-k-a-t | → [mók:a:t] | *come (pl. punct., nom.)* |
| k-á:-tim | → [ká:tim] | *grind grain (sg. iter., nom.)* |
| s-pí:-ka?a | → [spí:ka?a] | *he will taste it* |

Notice that the conditions are responsible for the generation of surface contrast between long and short consonants in the forms k-á:t-im [ká:t:im] *cook in ashes (sg. iter., nom.)* and k-á:-tim [ká:tim] *grind grain (sg. iter., nom.)* (see (7) and (9) above).

Vowel lengthening. There is also a vowel lengthening rule that lengthens an unstressed vowel when it follows the same type of stressed vowel nucleus and a consonant and is followed by a consonant. Conditions similar to those in (5) apply for this rule also. Compare k-ó:s-i?a [kó:s:i?a] *sing (sg. punct., nom.)* with k-ó:si-?a [kó:s:i:?a] *sing (pl. punct., nom.)*. The rule is given as (10).

(10) Vowel Lengthening: $V \rightarrow [+lng] / \acute{V} \langle -lng \rangle \left\langle \begin{bmatrix} V \\ -lo \\ -bac \\ -lng \end{bmatrix} \right\rangle C __ C$

Conditions: 1) The V must be in the same word as the stressed V.
2) The V may not be a suffixal V.

These lengthening rules are productive and yet they do not apply to most loanwords, as seen in the data in (11).

| (11) | singular | plural | |
|---|---|---|---|
| | [mó:na] | [mó:nax] | *monkey* |
| | [paṣá:to] | [paṣá:tox] | *shoe* |
| | [tŕó:ki] | [tŕó:kix] | *car, truck* |
| | [?áp:a:ts] | [?áp:a:ts] | *Apache* |
| | [káp:o:ta] | [káp:o:tax] | *jacket* |
| | [kót:o:n] | [kót:o:ṣax] | *shirt, blouse* |
| | [mí:st] | [mí:s:a:tx] | *cat* |

a-Infixation. It may be easily shown that the lengthening rules are productive in spite of the data in (11). One way to indicate disbelief or disgust in Seri is by using the appropriate intonation and adding the suffix /-aya/ to a word.

(12) sták sták-aya *pumice*

The effect of this morpheme is to change a word such as sták *pumice* into something equivalent to the English 'Pumice? Ha!' or 'Pumice, my eye!' The phonetic realization of sták-aya is as expected: [sták:aya]. If a consonant cluster immediately follows the stressed vowel nucleus (which has the same restrictions as above), however, an a is infixed following the first consonant of that cluster, as shown below. (The a of /-aya/

sometimes deletes by a rule that degeminates vowels under certain conditions (see note 3).

| | | | |
|---|---|---|---|
| (13) | ʔást | ʔás-a-t-aya | *stone* |
| | ptkámn | ptkám-a-n-aya | *lobster* |
| | ná:pχa | ná:p-a-χa-ya | *red-headed buzzard* |
| | yéktš | yék-a-tš-aya | *Yaqui* |
| | k-pán-ko-χ-+ka | k-pán-a-ko-χ-+ka-ya | *run (sg. iter., nom.)* |
| | któ:k-+k | któk-a-+k-aya | *lizards* |

Therefore the morpheme is actually /-aya/ [+LPM a-Infixation] where LPM means label the preceding morpheme to undergo, in this case, the morphological rule of a-Infixation. This rule might be written as (14).

(14) a-Infixation: $\emptyset \rightarrow$ +a+ / $\left\langle \begin{matrix} V \\ -lng \end{matrix} \right\rangle \left\langle \begin{bmatrix} V \\ -lo \\ -bac \\ -lng \end{bmatrix} \right\rangle$ C __ C

Condition: 1) Word-bounded.
2) The first C may not be suffixal.

The condition is necessary to explain the following type of data.

(15) šá:-+ka šá:-+ka-aya *caves*

This rule feeds Consonant Lengthening, but the a does not lengthen since it is an infix.

(16) ʔás-a-t-aya → [ʔás:ataya] *stone*

Loanwords may undergo lengthening if a-Infixation has applied. (The suffix /-aya/ itself is not generally used with loanwords, the infixation rule along being used.)

(17) elefánte elefán-a-te → [elefán:ate] *elephant*

The a-Infixation rule is also used with the morpheme ʔa+χ *rather*.

(18) m-ó:χp *It is white.*

ʔa+χ m-ó:χ-a-p *It is rather white.*

I will be using this rule as an important test in later sections of this paper.

Problems. There are some additional data that should be compared with respect to Consonant and Vowel Lengthening. The segments ʔ and i lengthen in the verb /-aʔit/ *eat*.

(19) k-á?it → [ká?:i:t] *eat (sg. punct., nom.)*

The causative prefix may be added to this root, the resulting verb meaning *feed; go fishing.* Note that the lengthening rules still apply. (The stress shifts from the stem vowel to the prefix vowel and the sequence áa is realized as [á:].)

(20) k-á-a?it → [ká:?:i:t] *feed (sg. punct., nom.)*

This form poses a problem unless the lengthening rules could apply to a form whose stressed vowel nucleus consists of two identical short vowels. I have tentatively ruled out this solution on the basis of a very few forms such as the following which I analyze as having a sequence of short vowels. Note that the lengthening rules have not applied.

(21) k-áa+-im → [ká:+im] *play (sg. punct., nom.)*

I have not decided what is the best way to handle these few problematical data.

2. The round consonants. There are three round surface consonants in Seri which would be posited as phonemes in a less abstract analysis (see Moser and Moser 1965). Although I cannot yet account for all of their occurrences, it has become obvious that these are derived segments. (The labialized velar fricative $x^w$ also occurs occasionally at the most detailed phonetic level. This segment will be discussed later.) First I will discuss the phonetic realizations of $k^w$, $\chi^w$, and W.[5]

Offglide. A round consonant has a voiced offglide when it precedes a (voiced) vowel or semivowel. (Again, the representations on the left are intermediate. The symbols $k^w$ and $\chi^w$ in the intermediate representations signify [+rd] consonants, the phonetic realizations of the feature [round] being specified by the environment in which the round consonant occurs. In the phonetic transcriptions, $k^w$ and $\chi^w$ represent back consonants with voiced offglides.)

(22) ktám$k^w$-i?a → [ktám$k^w$i?a] *They are men.*

ktám$k^w$-ya → [ktám$k^w$ya] *Are they men?*

?i-šša?ó:$\chi^w$-i?a → [?išša?ó:$\chi^w$i?a] *It is my upper arm.*

k-kápW-i?a → [kkápW$^w$i?a] *He is chewing it.*

A consonant followed by a glottal stop is realized as a glottalized consonant. Therefore $k^w$ and a following ? are realized as [k'$^w$]--an ejective velar stop with a voiced offglide (since it only occurs before vowels). The rule is given informally as (23). (Most of the phonetic transcriptions in this paper will not be so detailed so as to show the effect of this rule.)

(23) C ? ⇒ C' Ø
1 2 1 2

(24) kʷ-ʔ-á:s → [k'ʷá:s] *Give it to him to drink!*

The segment kʷ has a voiceless offglide before a (voiceless) obstruent. (The offglide is only variably perceptible before strident segments.)

(25) kʷ-t-pánʂχ → [kᵂtpánʂχ] *He is running like him.*

k-ó:kʷsx → [kó:kᵂsx] ~ [kó:ʞsx] *shake (sg. punct., nom.)*

Stops are optionally slightly aspirated before pause in Seri (Moser and Moser 1965:53) and probably it is by this same process that kʷ is sometimes realized as [kᵂ] in this position.

(26) ʔókʷ → [ʔóʞ] ~ [ʔókᵂ] *wood*

Elsewhere than the environments described above the round consonants do not have an offglide, but only simultaneous lip-rounding.

(27) k-tí:pχʷʂ-l+ → [ktí:pχ̬ʂl+] *squeeze (pl. punct., nom.)*

ʔá:mχʷ → [ʔá:mχ̬] *maguey*

k-í-kʷnix → [kíᵂknix] *shake (sg. punct., nom.)*

I will refer to these processes affecting the offglide of the round consonants as the Offglide Detail rule.

Rounding. Back consonants become [+round] following a [+round] consonant.

(28) Rounding: $C \rightarrow [+rd] / \underset{[+bac]}{C} \underset{[+rd]}{__}$ (left to right iterative)

Condition: Phrase-bounded.

(29) k-ʂó:χʷk → [kʂó:χ̬kᵂ] *be four (sg. punct., nom.)*

s-χápW-ka?a → [sχápWkʷa?a] *He will tremble.*

kʷ-χo-pánʂ-χ → [kᵂχʷopánʂχ] *He ran like him!*

Notice the following derivations.

(30)

| | ktámkʷ k-ʂó:χʷk koi | | ktámkʷ k-tíns-o koi | |
|---|---|---|---|---|
| Round (28) | kʷ | kʷkʷ | kʷ | kʷkʷ |
| Degem (2) | Ø | Ø | Ø | Ø |
| C Length (5) | | | | |
| V Length (10) | | | | |
| Offglide | kᵂ χ̬ kʷ | | kᵂ χ̬ kᵂ | |
| | [ktámkᵂʂó:χ̬kʷoi] | | [ktámkᵂʂó:χ̬kᵂtínsokoi] | |
| | *the four men* | | *the four men scraping* | |

| | | |
|---|---|---|
| | k-ʂó:χʷk χa? k-ápχa | ʔókʷ ki? |
| Round (28) | kʷχʷ | kʷ |
| Degem (2) | | Ø |
| C Length (5) | | kʷ: |
| V Length (10) | | |
| Offglide | χ kᵂχʷ | kʷ: |
| | [kʂó:χkᵂχʷaʔkápχa] | [ʔókʷ:iʔ] |
| | *four and three* | *the wood* |

| | | |
|---|---|---|
| | t-ʔanɬ t-ʂó:χʷk kʷ-k-ɬ:ʔ | |
| Round (28) | kʷ kʷ | |
| Degem (2) | Ø | |
| C Length (5) | | |
| V Length (10) | | |
| Offglide | χ kʷ | |
| | [tʔanɬtʂó:χkʷkʷɬ:ʔ] | |
| | *fourteen* | |

Diphthongization. As described in Moser and Moser 1965, a [-round] vowel immediately preceding a [+round] consonant in the same word becomes a diphthong with a non-low round offglide that agrees in the feature [high] with that vowel. The rule is given in (31).

(31) Diphthongization: $\emptyset \rightarrow \begin{bmatrix} -syl \\ -cns \\ \alpha hi \\ -lo \\ +bac \\ +rd \end{bmatrix} / \begin{bmatrix} V \\ \alpha hi \\ -rd \end{bmatrix} __ C[+rd]$

Condition: Word-bounded.

| | | | |
|---|---|---|---|
| (32) | ʔáχʷɬ | → [ʔáᵠχɬ] | *cherry stone clam* |
| | k-ɬ-kʷ-t | → [kɬᵂkᵂt] | *kill (pl. punct., nom.)* |
| | ʔ-akéWk | → [ʔakéᵠWkᵂ] | *firewood* |
| | ʔókʷ | → [ʔókᵂ] | *wood* |
| | ʔá: kʷ-ɬ-fp | → [ʔá:kʷɬ:fp] | *his arrival there* |

Velarization. When a p follows kʷ in the same word, the p becomes kʷ (the resulting geminate cluster being realized as a long segment). This process tends to apply in casual speech even when the p is in the following word.

(33) Velarization: $\begin{bmatrix}+\text{lab}\\+\text{ant}\\-\text{cnt}\\-\text{son}\end{bmatrix} \rightarrow \begin{bmatrix}+\text{bac}\\+\text{hi}\end{bmatrix} / \begin{bmatrix}+\text{lab}\\+\text{bac}\\-\text{cnt}\end{bmatrix} __$

Conditions: Word-bounded in careful speech.
Pause-bounded in casual speech.

(34) kʷ-po-pánš-χ → [kʷkʷopánšχ] *when he runs like him*

ʔókʷ pak → [ʔókᵂpak] ~ [ʔókʷkʷak] *some wood*

kʷ and χʷ as units. It is demonstrable that kʷ and χʷ are clearly units and not the sequences kW and χW (or even kw and χw) by the way these segments interact with the a-infixation rule.

(35)

| | derogatory | |
|---|---|---|
| ʔókʷ | ʔókʷaya | *wood* |
| kó:kʷsx | kó:kʷasxaya | *shake (sg. punct., nom.)* |
| ʔáχʷɬ | ʔáχʷaɬaya | *cherry stone clam* |
| kšáχʷt | kšáχʷataya | *speak (sg. punct., nom.)* |

kʷ, χʷ and W as derived segments. Although kʷ and χʷ are units at the level in the derivation at which a-Infixation applies, there is evidence that they are both derived from underlying ko and χo respectively, and that W derives from /o/, as I will now demonstrate.

For many verbs iterative aspect is expressed simply by suffixing /-tim/ to the verb stem as shown in (36). The t of /-tim/ is deleted following a consonant that is preceded by an unstressed vowel.

(36)

| | | |
|---|---|---|
| k-méke | k-méke-tim | *be lukewarm* |
| k-mošíme | k-mošíme-tim | *be drunk* |
| k-á:a | k-á:a-tim | *call* |
| k-píɬoɬ | k-píɬoɬ-im | *be bloated* |
| k-ípon | k-ípon-im | *cry out* |

The deletion rule could be stated as (37).

(37) t-Deletion: $t \rightarrow \emptyset / \begin{matrix}\text{V}\\[-\text{stress}]\end{matrix}\ \text{C} + __$

Iterative aspect is indicated by this suffix on many verbs and in addition punctiliar aspect is indicated on these verbs by deleting a vowel in the verb stem. Some examples are given in (38). The deletion rule is given

in a simplified form in (39).

(38)

| | | |
|---|---|---|
| k-níp | k-nípa-tim | *hit with hand* |
| k-kóxp | k-kóxop-im | *bolt* |
| k-mí?ʂχ | k-mí?ɪʂχ-im | *slip* |
| k-ká:kp | k-ká:kop-im | *pound* |

(39) Syncope: $V \rightarrow \emptyset \; / \; \underset{[+\text{stress}]}{V} \; (V)\; C \; _$ in certain forms

(The operation of this deletion rule is actually quite idiosyncratic for a given verb--it may apply in any or all of the four forms marked for number/aspect.) In addition, when the vowel to be deleted is an o and when it is contiguous to a back consonant, labialization or W usually shows up in the "syncopated" form. Some examples are given below. (There is also a rule by which x becomes ɬ in forms other than the singular punctiliar.)

(40)

| | | |
|---|---|---|
| k-í-kʷ | k-í-ko-tim | *kill* |
| kʷ-k-ɪ-?áχʷɬ | kʷ-k-ɪ-?áχoɬ-im | *have eating utensil* |
| k-kápWx | k-kápoɬ-im | *chew* |
| k-χápWx | k-χápoɬ-im | *tremble* |

The syncope rule then must have two parts; it is given informally as (41). The first part of this pair of rules will generate W; a separate rule will coalesce back consonants and W.[6]

(41) Syncope:

$$\left.\begin{array}{l} o \rightarrow W \\ V \rightarrow \emptyset \end{array}\right\} \; / \; \acute{V}(V) \left\{\begin{array}{l} \left\{\begin{array}{l} C \\ [+bac] \; _ \\ C \\ \quad\; _ \; C \\ \qquad [+bac] \end{array}\right\} \\ CC \; _ \end{array}\right\}$$

in certain forms

(42) Coalescence:

$$\begin{array}{ccc} C & W & \Rightarrow \\ [+bac] & & \\ 1 & 2 & \end{array} \quad \begin{array}{cc} [+rd] & \emptyset \\ 1 & 2 \end{array}$$

There is additional evidence for this analysis. The form 'loco' *crazy* was borrowed from Spanish in quite regular ways. The voiced lateral was replaced by [ř]. Stressed vowels in loanwords are lengthened when they precede a consonant. Also, some version of the syncope rule applied. The Seri form is therefore řó:kʷ. The verb *make crazy* is k-a-řó:ko-t.

The rule deleting t given above (rule (37)) does not take care of all the instances where the t of a suffix is deleted. This t also deletes if it

is preceded by a consonant cluster. I will formalize this as (43) below. Notice that (39) has applied in some of the plural forms in (45).

(43) t-Deletion II: $t \rightarrow \emptyset$ / CC + __

| (44) | singular punctiliar | plural punctiliar | gloss |
|---|---|---|---|
| | k-méke | k-mék-tox | *be lukewarm* |
| | k-ása | k-ása-tox | *be spoiled* |
| | k-pítoɬ | k-pítɬ-ox | *be bloated* |
| | k-i-kó:poɬ | k-i-kó:pɬ-ox | *become dark* |

By comparing the forms of (44) with the forms of (45) below (which take different suffixes for the plural forms), we see that we must accept either a more complicated version of t-Deletion II or agree that Coalescence (45) has applied and bled t-Deletion II.

| (45) | sing punct | sing iter | plur punct | plur iter | gloss | root |
|---|---|---|---|---|---|---|
| | k-šáχʷ | k-šáχʷ-tim | k-šáχʷ-t | k-šáχʷ-toɬka | *talk* | -šaχo |
| | k-í-kʷ | k-í-ko-tim | k-í-kʷ-t | k-í-kʷ-tox | *kill* | -ako |

In summary, it appears to be the case that most (perhaps eventually all) occurrences of W may be generated from underlying o's. The sequences kW and χW are converted by a context-free rule to $k^{w}$ and $\chi^{w}$ resepectively. From that point on, these sounds function as units.

x-Deletion. There is now an important point to be clarified that was problematic for Moser and Moser (1965). In (40) we gave the singular punctiliar forms of *chew* and *tremble* as kkapWx and kχápWx respectively. We know that the x is there because of the x → ɬ rule and the fact that the syncope rule requires a contiguous back consonant. The x is not present phonetically, however. The following rule accounts for its deletion.

(46) x-Deletion: $x \rightarrow \emptyset$ / $\underset{[+rd]}{C}$ __ Z

Conditions: In careful speech Z ≠ V [+bac]
In casual speech there is no condition on Z.

As the conditions indicate, the rule will not apply in careful speech if the x is followed by a back vowel. Otherwise, the x always deletes.

Moser and Moser (1965:54) set up the sequence kW in contrast with the unit $k^{w}$ on the basis of the superficially anomalous form [ʔayáʕk$^{w}$] *anklebone*.

> On the basis of the examples [ʔokʷ] *wood* and [ʔayáokW] *ankle bone*, /kʷ/ has been set up as in contrast with /kW/. There is a fairly large number of words which for some speakers terminate in [kW]. For all such words except [ʔayáokW], this varies freely toward [kʷ]. There is thus no convincing evidence of contrast apart from this one example. Morphophonemic evidence bears out the uniqueness of ʔayákW. All other words ending in isolation in either /kʷ/ or /kW/, when followed by a vowel in combined forms, have /kʷ/, not /kW/: ktamkʷ *men*, ktámkʷiʔa *they are men*; kšooχkW *to be four*, kšóoχkʷiʔa *there are four*.

Elsewhere on the same page they add,

> The phoneme /W/ after /k/, however, is clearly heard as an additional segment [in the word *anklebone*--SM]: ʔayákW *ankle bone*, ʔayákWiʔa *it is an ankle bone*.

I will now present evidence that the morpheme *anklebone* is -yakʷx (< /-yakox/), and that the final x is what causes the word to be pronounced differently from words ending in kʷ. The plurals of *anklebone* are -yákʷ+k and -yákʷ+xox (collective). Nouns that have plurals with -+k(a) often have singular forms ending in x (for whatever reason historically).

A few examples are given in (47).

| | | | |
|---|---|---|---|
| (47) | tákx | ták+k | *porpoise* |
| | ʔápax | ʔápa+k | *octopus* |
| | šámix | šámi+k | *palm* |
| | kopsí:x | kopsí:+ka | *jellyfish* |
| | kótx | kót+ka | *manta ray (sp.)* |
| | ká:nx | ká:n+ka | *sea bass (sp.)* |

The plural suffix -+k(a), however, also occurs on noun stems that do not end in x.

| | | | |
|---|---|---|---|
| (48) | ná:pχa | ná:pχa+k | *red-headed buzzard* |
| | nó:si | nó:si+k | *mourning dove* |
| | kíši | kíši+k | *sardine (sp.)* |
| | ʔáχ | ʔáχ+k | *projectile point* |
| | koyóko | koyóko+k | *dove* |

Therefore we might hypothesize a final x for [ʔayáʔkʷ] which would delete after it provides the environment for the Offglide Detail rule.

The best evidence comes from the a-Infixation rule, however.

(49) [ʔayáʕkʷ:axaya] *Anklebone, my eye!*

There the x surfaces indisputably--and quite mysteriously unless we posit ʔayákʷx as a proper (intermediate) representation of *anklebone*.

Since the rule deleting x after kʷ may be collapsed with the x-Deletion Rule (46), it seems unnecessary to posit two separate x-Deletion rules (although I have not yet checked to see if the conditions on (46) apply to the other rule also). It is also important to point out that this is the only word that I am aware of for which a rule x → Ø / kʷ __ is necessary. Therefore it seems highly desirable to consider deletion of x in ʔayakʷx and the deletion of x in kχápWx to be effected by the same rule, even though in some cases the x is not recoverable from the phonetic form. The derivation of ʔayákʷx and ʔayákʷaxaya would be as follows:

| (50) UF | /ʔa-yákox/ | /ʔa-yákox-aya/ |
|---|---|---|
| Syncope (41) | ʔayákWx | ʔayákWxaya |
| Coalescence (42) | ʔayákʷx | ʔayákʷxaya |
| a-Infixation (14) | --- --- | ʔayákʷaxaya |
| Rounding (28) | ʔayákʷxʷ | ---------- |
| C Length (5) | -------- | ʔayákʷ:axaya |
| V Length (10) | -------- | ---------- |
| Diphthong (31) | ʔayáʕkʷxʷ | ʔayáʕkʷ:axaya |
| Offglide | ʔayáʕkᵂxʷ | ʔayáʕkʷ:axaya |
| x-Deletion (46) | ʔayáʕkᵂ | ---------- |
| | [ʔayáʕkᵂ] | [ʔayáʕkʷ:axaya] |

It is important to notice that x-Deletion (46) must apply after the Offglide Detail rule has applied.

Other rules generating kʷ and χʷ. Not all occurrences of intermediate kʷ and xʷ are generated by Syncope and Coalescence. The third person referent clitic has two allomorphs: kʷ- and ko-. It is usually kʷ- except before consonant clusters of which the first member is ʔ, m, or k in which case it is ko- as seen by the data below.

(51)

| | |
|---|---|
| kʷ-ʔ-á:s | *Give it to him to drink!* |
| kʷ-k-a:s | *(he) who gives to drink* |
| kʷ-yo-pánʂ-χ | *He ran like him.* |
| kʷ-s-pánʂ-χ-kaʔa | *He will run like him.* |
| kʷ-t-pánʂ-χ | *Did he run like him?* |
| ko-m-pánʂ-χ | *He is running like him.* |
| ko-k-pánʂ-χ | *(he) who runs like him* |
| ko-ʔ-pánʂ-χ | *Run like him!* |

The third person referent clitic is also ko- in imperative forms if the verb stem begins with a short low vowel. By regular morphophonemic rules, the intermediate forms on the left in (52) result.

(52) imperative

| | | |
|---|---|---|
| kó:-mxk | *Take it to him/her!* | < ko-ámxk |
| an kó:-ʂkim | *Come in!* | < an ko-áʂkim |
| kó:-taχ | *Go like a ...!* | < ko-átaχ |

A special rule will be needed to handle the alternation between kʷ and ko in this morpheme.

The segment χʷ is also generated directly by a morphophonemic rule. When a prefix ending in o precedes a (long or short) o, the vowels coalesce and become short a if and only if the verb is intransitive. (Otherwise, the prefix vowel deletes.)

(53)

| stem | po- (dep fut) | yo- (past) | t- (interr) | gloss |
|---|---|---|---|---|
| -otx | pátx | yátx | tótx | *arise* |
| -o:s | pás | yás | tó:s | *sing* |
| -o:poɬ | pápoɬ | yápoɬ | tó:poɬ | *be black* |

The rule describing this process could be summarized as (54).

(54) Vowel Coalescence:

$$\begin{matrix} V & + & V & \Rightarrow & V & \emptyset \;/\; _\; ]_{V\ intr} \\ \begin{bmatrix} +bac \\ -lo \end{bmatrix} & & \begin{bmatrix} +bac \\ -lo \end{bmatrix} & & \begin{bmatrix} +lo \\ -lng \end{bmatrix} & \\ 1 & & 2 & & 1 \quad 2 & \end{matrix}$$

When the prefix χo- (emphatic) is added to these stems, coalescence takes place and in addition the χ becomes $\chi^{w}$. The emphatic forms of the verbs above are: $\chi^{w}$átɨ, $\chi^{w}$ás, and $\chi^{w}$ánʂχ. The rule describing this rounding could be written as (55).[7]

(55) χ-Rounding: $\chi \rightarrow [+rd] / __ \begin{bmatrix} V \\ +bac \\ -lo \end{bmatrix} + \begin{bmatrix} V \\ +bac \\ -lo \end{bmatrix} // __ ]_{V\ intr}$

There is another rule that generates intermediate $k^{w}$. When k follows W, they coalesce to become $k^{w}$.

(56) Coalescence II: W k ⇒ Ø [+rd]
1 2 1 2

In the following derivation (which goes to an intermediate level), another (syntactico-phonological) rule applies which deletes x when it precedes k in singular punctiliar forms; I call this the x-Rule.

| (57) *burst* | sing punct | sing iter |
|---|---|---|
| UF | /k-mápoxk/ | /k-mápoxk-tim/ |
| x-Rule | kmápok | ---------- |
| Syncope (41) | kmápWk | ---------- |
| Coalescence II (56) | kmápk$^{w}$ | ---------- |
| t-Deletion (37) | ------ | kmápoxkim |
| | kmápk$^{w}$ | kmápoxkim |

In the following verb, the x-Rule applies in the singular punctiliar form but not in the plural punctiliar form and is therefore the underlying cause of the surface contrast. (The plural punctiliar morpheme is -Ø for this verb.)

| (58) *be vertical* | sing punct | sing iter | plur punct |
|---|---|---|---|
| UF | /k-ó:ʔoxk/ | /k-ó:ʔoxk-tim/ | /k-ó:ʔoxk/ |
| x-Rule | kó:ʔok | ---------- | -------- |
| Syncope (41) | kó:ʔWk | ---------- | kó:ʔWxk |
| Coalescence II (56) | kó:ʔkʷ | ---------- | ------- |
| t-Deletion (37) | ------ | kó:ʔoxkim | ------- |
| Rounding (28) | ------ | --------- | kó:ʔWxʷkʷ |
| C Length (5) | ------ | kó:ʔ:oxkim | --------- |
| V Length (10) | ------ | kó:ʔ:o:xkim | --------- |
| Diphthong (31) | ------ | ---------- | --------- |
| Offglide | kó:ʔkᵂ | ---------- | kó:ʔWxkᵂ |
| x-Deletion (46) | ------ | ---------- | kó:ʔWkᵂ |
| | [kó:ʔkᵂ] | [kó:ʔ:o:xkim] | [kó:ʔWkᵂ] |

As I have said, there are very few occurrences of W that cannot be accounted for. One outstanding example is the verb k-aWášp *be crushed; crush*. In spite of such words, the preceding analysis seems to be well-motivated and probably historically valid as well.

3. Nasalization. Moser and Moser (1965:55) noted that "nasalization is restricted to vowel nuclei preceded by /kʷ/." Nasalized vowels are derived by three rules: two that lenite m to w̃, and one that subsequently nasalizes the vowel or vowels that follow this nasal glide.[8] The rules are given informally and illustrated below.

(59) Nasal Lenition I: m → w̃ / kʷ __ (Pause-bounded)

(60) Nasalization: $V \rightarrow [+nas] / \begin{bmatrix} -cns \\ +nas \end{bmatrix}$ __ (left to right iterative)

(61) ktámkʷ mó-k-a-t koi → [ktámkʷw̃ók:a:t]
men toward-NOM-move-PLUR the

*the men who are coming*

kʷ-m-atʃkpan → [kʷw̃atʃkpan]
3R-PERF-work

*he is working with him*

tok kʷ-mí:-ʂkam → [tokʷ̃wT:ʂkam]
there 3R-PERF-[arrive-PLUR]

*they arrived there*

(62) Nasal Lenition II: m → w̃ / k __ (Word-bounded)

(63) k-mám → [kw̃ám̃] *that which is cooked*
NOM-[be cooked]

k-m-atʃkpan → [kw̃átʃkpan] *Don't work!*
IMP-NEG-work

kmʃke → [kw̃ʃ́k:e] *person; Seri*
person/Seri

l?-sk-m-á:i-a?a → [i?skw̃ã:ʈã?a] *I shouldn't do it.*
1SUB-FUT-NEG-do-CLITIC

ták-ɬk pak mó-k-a-t-i?a → [ták+kpakmók:a:ti?a]
porpoise-PLUR-some toward-NOM-move-PLUR-DECL

*Some porpoises are coming.*

The switch-reference marker /ma/ seems to be optionally cliticized to the verb by some speakers, in which case it undergoes (62); otherwise it does not.

(64) t-?ámok(=)ma → [t?ám:o:kw̃ã] ~ [t?ám:o:kma]
DP-night SCP

*when it is night*

Rules (59) and (62) are bled by a rule that epenthesizes an o when a [-labial] consonant is followed by a nasal and another consonant; for example, k-m-pánʂ-χ (IMP-NEG-run) becomes kompánʂχ *Don't run!*.

Moser and Moser caught these changes as they were spreading through the lexicon and the speech community and contrasted forms to which the rules had applied with forms to which the rules had not yet applied; therefore they considered nasalization phonemic, although considerable alternation was noted. Since then, the rules have generalized to the entire lexicon for younger speakers although older speakers continue to not lenite m in certain words.

4. Process affecting /m/. An m that follows an unstressed vowel assimilates to the general point of articulation of a consonant that follows it.[9] Thus an m becomes n (dental) before dentals, alveolars and palatals, and ŋ before velars and back velars; it remains m elsewhere.[10] (When a nasal precedes a glottal stop in a word, the two segments metathesize. When the glottal stop is in the following word, metathesis may occur in casual speech.) Since according to E. Moser (personal communication) the nasal is dental and not palatal before y, the rule is somewhat

difficult to state formally.

(65) m-Assimilation: $$C \rightarrow \begin{bmatrix} \alpha bac \\ -\alpha ant \\ -\alpha cor \end{bmatrix} / \begin{matrix} V \\ [-str] \end{matrix} __ \begin{bmatrix} -syl \\ \alpha bac \\ \beta ant \\ \beta cor \end{bmatrix}$$ (Pause-bounded)

The effect of this rule is illustrated by the following data.

(66) i-m-á: → [imá:] *who is not grinding grain*

i-m-pí: → [impí:] *who is not tasting it*

i-m-sí: → [insí:] *who is not smelling it*

i-m-yá: → [inyá:] *who does not own it*

i-m-ká: → [iŋká:] *who is not looking for it*

kmíke ktám i-kanóa: k-tápo+k-im ki? yó:-fp →
person male 3POSS-boat NOM-[be broken] the PAST-arrive

[kw̃ĩ́k:e: ktám: ikanóa: ktáp:o:+kiŋ ki? yó:fp]

*The man whose boat is broken arrived.*

The phoneme /ŋ/ never assimilates to labial or velar points of articulation.

(67) s-ó:-men-ka?a → [só:m:e:ŋka?a] *He will winnow.*

Some morphemes do not have allomorphs with m; one example is komká:k [koŋká:k] *people; Seris*. Old word lists indicate that this word was once pronounced [komká:k]. Pinart (1879) and and Bartlett (1852) both give komkak. McGee (1894), however, gives ku$^{n}$-kak. For tomkox k$^{w}$-k-í:? [toŋkox k$^{w}$k$^{w}$í:?] *seven*, Pinart gives tomkaχkue, and Pimentel (1875) gives tomkujkcui. For komkái: [koŋkái:] *old woman*, however, McGee gives kŭnkai'e and Pimentel konkabre.

Backing. Another rule generating ŋ is characteristic of younger speakers. By this rule an m following an unstressed vowel becomes ŋ when it occurs before pause. This rule could be stated as (68). It does not apply to n.

(68) Backing: $$C \rightarrow \begin{bmatrix} +nas \\ -cor \end{bmatrix} \begin{bmatrix} +bac \\ +hi \end{bmatrix} / \begin{matrix} V \\ [-stress] \end{matrix} __ \|$$

Thus k-á:i-tim *do (sg. iter., nom.)* is often pronounced [ká:itiŋ].

Influence of secondary stress. The assimilation and backing rules are blocked by secondary stress which is assigned by two rules. The first rule assigns secondary stress to a vowel following a vowel with primary stress. (I will discuss primary stress placement later.)

(69) $V \rightarrow [2\ \text{stress}] / \underset{[1\ \text{stress}]}{V} __$

Therefore s-á:om-ka?a becomes [sá:òmka?a]; m-Assimilation (65) does not apply. Secondary stress does not condition Consonant or Vowel Lengthening: ká:om-i?a → [ká:òmi?a]. (Therefore these rules need to be rewritten with [1 stress] as the feature on the stressed vowel.)

Secondary stress is also generated during compound word formation. In compound words the stress on the first member of the compound is reduced. (The loss of vowel length will be discussed later.)

(70) χó:p *Bursera microphylla*

ĺ-nɬ *its fingers*

χòpín+ *Bursera hindsiana*

There are many other words that obviously are compound words although they may have undergone further phonological change, most notably a loss of consonant or vowel in a cluster.

(71) χépe *sea, tide*

ano *in*

ká:y *horse*

χèpenoká:y *mythological sea creature*

k-ák$^{w}$+ *(they) who are big*

χòpkák$^{w}$+ *Bursera laxiflora*

χpaná:ms *seaweed*

χpanàmsák$^{w}$+ *sargassum*

It should be noted that in words such as χpanàmsák$^{w}$+ in (71) the m follows a vowel with secondary stress and so does not assimilate to the following consonant. It is expected that as the internal structure of compound words becomes more opaque, the m-Assimilation rule will apply. A possible example pointed out to me by M. Moser is the initial unanalyzable sequence in the words in (72).

(72) χomka?ĺ:ft → [χoŋka?ĺ:ft] *oregano bush*

χomka?óix → [χoŋka?óix] *Opuntia reflexispina*

χomχéšišˌ → [χoŋχéšišˌ] *ocotillo*

The last word in (72) has a variant in the idiolect of at least one speaker: moχéšišˌ.

Exceptions to m-Assimilation. There are a few interesting exceptions to the assimilation rule. Phrases that serve as demonstratives are composed of a locative plus an article. The underlying form of *there* is seen in the data in (73).

(73) ʔim i-t-ákatχ ma *leaving it there*
there TR-DP-leave SCP

This locative combines with the definite articles (which are derived historically from various verbs (cf. Moser 1977) to form demonstrative adjectives and pronouns; these demonstratives are stressed on the locative morpheme.

(74) ʔím-intɪka tok ko-ntʃ-k-a → [ʔímintɪkatokontʃk:a]
[that one] there 3R-away-NOM-move

*There he goes.*

ktám ʔím-kop → [ktàmʔíŋkop]
man [that]

*that man (standing)*

Obviously the problem is that the m has assimilated to the velar point of articulation even though the preceding vowel is strongly stressed. These demonstratives are also unusual in that they are exceptions to Consonant and Vowel Lengthening: the form ʔímintika is phonetically [ʔímintika]. The aberrant pattern of these forms might be accounted for by positing a special late (phrase?) stress rule for them.

Special m-Assimilation. A final rule that applies uniquely to the commonly used verb -o:m *lie, be prone* is given as (75).

(75) Special m-Assimilation: $C \rightarrow \begin{bmatrix} \alpha bac \\ -\alpha ant \\ -\alpha cor \end{bmatrix} / __ \; C \begin{bmatrix} \alpha bac \\ \beta ant \\ \beta cor \end{bmatrix}$ (Pause-bounded)
$\begin{bmatrix} +nas \\ -cor \\ -bac \end{bmatrix}$

Condition: This rule applies only to the verb -o:m *lie, be prone.*

(This verb cannot be interpreted as having a vowel cluster as its nucleus since it undergoes Consonant and Vowel Lengthening.) Compare the following forms.

(76)

| *lie* | *swallow (intr.)* | |
|---|---|---|
| -o:m<br>lie | -o-am<br>INTR-swallow | |
| [kó:m:ɪʔa] | [kó:m:ɪʔa] | *He is ....* |
| [kó:nya] | [kó:mya] | *Is he ...?* |
| [só:ŋkaʔa] | [só:mkaʔa] | *He will ....* |

Alternatively, the verb -o:m *lie, be prone* could be marked as a positive exception to m-Assimilation (65).

There are two remaining occurrences of [ŋ] that cannot or should not be handled by any of the above rules: the verb *to speak wrong* [k-a?íoŋ], [k-a?íoŋ-tax] (plural) and the name of a certain species of duck [któ:ŋk], which is obviously onomatopoetic.

5. The chameleon consonant. There are approximately twenty verbs which exhibit a peculiar variety of allomorphy. In order to effectively demonstrate the superficially irregular behavior of these verbs, I will briefly sketch the more typical morphophonemic changes that occur with prefixation in Seri.

Consonant-initial stems are relatively straightforward. (Finite verb forms are cited with third person subject, unmarked in Seri, and third person object (where applicable), also unmarked. Singular punctiliar stems will be used throughout.)

| (77) | Subject Nominalized | Interrogative | Future | Past |
|---|---|---|---|---|
| | k- | t- | si- | yo- |
| -meke<br>*be lukewarm* | k-méke | t-méke | s-méke | yo-méke |

The i of the future prefix /si-/ (and certain other morphemes) deletes by an early rule that is irrelevant here.

Vowel-initial verb stems may be divided into the following types based primarily on the quality and length of the vowel: those beginning with (a) a short low vowel, (b) a high back vowel and the verb is intransitive, (c) any other vowel. The forms below illustrate type (a).

| (78) | k- | t- | si- | yo- |
|---|---|---|---|---|
| -anx<br>*roar* | k-ánx | t-ánx | sí:-nx | yó:-nx |

Notice that the stem vowel deletes and the prefix vowel, which now carries the stress in the future and past forms, is lengthened. The following forms illustrate type (b).

| (79) | k- | t- | si- | yo- |
|---|---|---|---|---|
| -otx<br>*arise* | k-ótx | t-ótx | s-ótx | yátx |
| -o:?a<br>*cry* | k-ó:?a | t-ó:?a | s-ó:?a | yá?a |

Notice that the prefix vowel i deletes, but the prefix vowel o coalesces with the stem vowel to yield short a. The following forms illustrate

verbs of type (c). (The prefix /-i-/ is a transitive marker.)

| (80) | k- | t- | si- | yo- |
|---|---|---|---|---|
| -a:npχ<br>*return home* | k-á:npχ | t-á:npχ | s-á:npχ | y-á:npχ |
| -o:n<br>*carry* | k-ó:n | i-t-ó:n | i-s-ó:n | i-y-ó:n |
| be seated<br>*be seated* | k-ĺ:x | t-ĺ:x | s-ĺ:x | y-ĺ:x |
| -itχ+<br>*become pieces* | k-ĺtχ+ | t-ĺtχ+ | s-ĺtχ+ | y-ĺtχ+ |

As with previous data, rules are formulable to express the alternations and deletions seen in these forms, but these are not germane to our discussion. It is only important to notice the types of changes that occur with vowel-initial stems.

Many verbs may be used transitively or intransitively, in which case the intransitive form requires the intransitive marker /-o-/. This morpheme occurs directly before the stem and often coalesces with the stem vowel to yield yet additional allomorphs, some of which are given in (81). The transitive forms require the transitive marker (as do all transitive verbs in Seri); this marker follows the subject nominalizer, usually deleting by one of various rules, and otherwise occurs only preceding a finite verb that has third person subject and object, as do the forms in (81).

| (81) | k- | t- | si- | yo- |
|---|---|---|---|---|
| -sanx | k-sánx | i-t-sánx | i-s-sánx | i-yo-sánx |
| *carry child* | k-o-sánx | t-o-sánx | s-o-sánx | ya-sánx |
| -am | k-ĺ-m | i-t-ám | i-sĺ:-m | i-yó:-m |
| *swallow* | k-ó:-m | t-ó:-m | s-ó:-m | yá-m |
| -i:p | k-ĺ:p | i-t-ĺ:p | i-s-ĺ:p | i-y-ĺ:p |
| *carry on head* | k-é:p | t-é:p | s-é:p | y-é:p |

I will now present some forms of verbs that do not at all pattern like the majority of the verbs in Seri.

| (82) | k- | t- | si- | yo- |
|---|---|---|---|---|
| *play violin* | k-ké:nx<br>k-o-é:nx | i-t-té:nx<br>t-o-é:nx | i-s-sé:nx<br>s-o-é:nx | i-yo-é:nx<br>yo-é:nx |
| *be shiny* | k-kámWx | t-támWx | s-sámWx | yo-ámWx |

The allomorphs of verbs such as those in (82) are not predicted by any rule that has been posited above.

An abstract analysis. An abstract analysis of these stems would posit an abstract 'chameleon' consonant as the initial segment of the verb stems in (82); I will use the symbol Q for this segment. Only two simple rules would be needed; these are given as (83) and (84). An illustrative derivation is given in (85).

(83) $Q \rightarrow C_i \; / \; \underset{[+cns]}{C_i} \; __$

(85) Q → Ø / [-cns] __

(86)

| | | |
|---|---|---|
| | t-QámWx | yo-QámWx |
| (83) | ttámWx | -------- |
| (84) | ------ | yoámWx |
| | ttámWx | yoámWx |

The imperative forms of Q-verbs illustrate the reason why rule (85) deletes Q after non-consonantal segments rather than after vowels alone.

(87) i?-é:nx *Play it (violin)!* < ?-Qé:nx

Negative forms of Q-verbs, as well as other forms, are consistent with this analysis.

(88) yo-m-mámWx *It wasn't shiny.*
PAST-NEG-[be shiny]

These verbs must be marked [Label Preceding Morpheme -Coalescence (54)] to prevent the application of the rule of coalescence that applies in the derivation of yasánx from underlying /yo-o-sánx/ (see (81)). From underlying /yo-o-Qé:nx/, the surface form yoé:nx results rather than yaé:nx or yée:nx as would otherwise be expected. Additional evidence for claiming that these verbs are consonant-initial will be presented below.

Causative prefix. The causative prefix in Seri has several suppletive allomorphs whose distribution is determined primarily by the phonological shape of the following morpheme. (There are a few additional data that do not correlate with the following characterization of the distribution but which do not affect the argument presented below.)

The causative prefix is /-a-/ when followed by a consonant as in (89).

(89) -pokt *be full* -a-pokt *fill*

The prefix is /-ak-/ when followed by a short low vowel or the intransitive morpheme as in (90).

(90) -anox *burn (intr.)* -ak-anox *burn (tr.)*

-o-amχ (>-o:mχ) *say (intr.)* -ak-o-amχ (>-akó:mχ) *denounce, accuse*

The prefix is /-a?-/ when followed by a stem vowel that is not a short low vowel as in (91).

| | | | | |
|---|---|---|---|---|
| (91) | -i:pe | *be good* | -a?-i:pe-t | *fix* |
| | -ʉ:npχ | *return home* | -a?-a:npχ | *return (something)* |
| | -iχpχax | *quiver* | -a?-iχpχax | *shake (tr.)* |

The allomorph /-a-/ is also used with a small set of verbs that are not consonant-initial and which must therefore be specially marked to take this form of the causative morpheme.

| | | | | |
|---|---|---|---|---|
| (92) | -a?it | *eat* | -a-a?it | *feed; fish* |

There are two more allomorphs that occur with a small number of verbs: /-k-/ as in (93) and /-k-/ plus an ablaut rule (an abstract analysis of this allomorph is also possible) as in (94).

| | | | | |
|---|---|---|---|---|
| (93) | -a$\check{s}$χ | *be torn* | -k-a$\check{s}$χ | *tear* |
| (94) | -i:tɬxk | *drip* | -k-e:txk | *cause to drip* |

What is important to note is that the allomorph that occurs with consonant stems is /-a-/, although this allomorph also occurs with a few other verbs, as stated above. This allomorph is the one that occurs with Q -verbs, which fact would follow unsurprisingly from the analysis of these verbs as having consonant-initial stems.

| | | | |
|---|---|---|---|
| (95) | -qi?Wx | *be red* | (as in k-kí?Wx) |
| | -a-qi?Wx | *make red* | (as in k-á-i?Wx) |

Infinitive. The infinitive prefix in Seri also has several suppletive allomorphs. The infinitive morpheme is /ika-/ when the verb is intransitive, the a often deleting by regular phonological rules.

| | | | |
|---|---|---|---|
| (96) | ikaméke | *to be lukewarm* | (< ika-méke) |
| | iké:χʷ | *to jump (intr.)* | (< ika-o-ʃχʷ) |

The allomorph /i?-/ plus an ablaut rule occurs when this morpheme is followed directly by a transitive verb that begins with a high vowel. (Again, an abstract analysis of this allomorph is possible.)

| | | | |
|---|---|---|---|
| (97) | i?é:χʷ | *to jump across* | (< i?-ʃχʷ) |
| | i?ákta | *to look at* | (< i?-ó:kta) |
| | i?é: | *to hear* | (< i?-i:) |

The allomorph /i?a-/ occurs elsewhere.

(98) i?áṣiχ *to cut* (< i?a-áṣiχ)

i?apí: *to taste* (< i?a-pí:)

The allomorph that occurs with consonant-initial transitive verbs, therefore, is /i?a-/, which also occurs with Q-verbs that are transitive, such as (99)

(99) -Qí: *feel* i?ái: *to feel*

Note that if this verb began with a high vowel, it would have been expected to take the /i?-/ plus ablaut allomorph of the infinitive.

i-Epenthesis. There is a late phonological rule that inserts i as follows (simplified slightly).

(100) $\emptyset \rightarrow i \; / \; \left\{ \begin{matrix} \| \\ C \end{matrix} \right\} \; (\#\#) \; __ \left\{ \begin{matrix} ? \\ C \\ [+nas] \end{matrix} \right\} C$

Condition: Word-bounded.

(101) /m-t-á?o/ → imtá?o *Did you see him?*
2SUB-INTER-see

/ktám k? m-t-á?o/ → ktám k? imtá?o *Did you see the man?*
man the

/áṣ-ya m-t-á?o/ → áṣya mtá?o *What did you see?*
what-INTER

One allomorph of the imperative morpheme is /?-/ and it often provides the environment for this Epenthesis rule.

(102) ?-í:m *Sleep!*

i?-pí: *Taste it!*

Note that this rule has applied in the following forms.

(102) i?íṣo *Lift it!* (< ?-Qiṣo)

i?ótṣ *Suck it!* (< ?-Qotṣ)

These forms can be explained by ordering the Q-Deletion rule after i-Epenthesis.

Other evidence. On the basis of the allomorphs of the passive morpheme, the third person referent clitic, and the action nominalizer, other evidence of the type presented in the paragraphs above could be developed. Since the arguments would be essentially identical, however, I will not present this evidence here.

A concrete analysis. A concrete analysis would, of course, claim that the verbs under consideration do not begin with an abstract consonant. One concrete solution would be to choose one of the allomorphs beginning with a consonant, say -tamWx or -kamWx, and mark the stem-initial consonant to undergo special assimilation and deletion rules that unmarked consonants do not undergo. This alternative does not seem to be well-motivated because there is no basis for choosing one consonant over another and rules parallel to those in the abstract solution would be necessary. Also, this solution would 'predict' that should these verbs be regularized in a reanalysis by the speakers of the language, they will emerge as t-initial or k-initial stems. I do not know of any evidence at present in support of this claim. ¤

Another concrete solution would be to posit the vowel-initial allomorph as underlying and mark the verb in the following way: [Label Preceding Morpheme +Special Consonant Lengthening]. Special Consonant Lengthening would be a minor rule, given as (103).

(103) $\begin{matrix} C \\ [+cns] \end{matrix} \rightarrow [+lng] \; / \; __ \; +_{Vs}[$

| | | | |
|---|---|---|---|
| (104) | | t-ámWx | yo-ámWx |
| | (103) | ttámWx | ------- |
| | | ttámWx | yoámWx |

These verbs would also have to be marked in an ad hoc fashion to take the various allomorphs of the morphemes such as causative, imperative, and passive. In the case of the causative prefix, this is not without precedent since it has been seen that there is already at least one ad hoc class that takes the /-a-/ allomorph. There is also a need to distinguish the behavior of these verbs with regard to the prefix vowels from that of the regular verbs shown in (78) - (81). Compare again the forms in (105).

| | | | |
|---|---|---|---|
| (105) | -anx | *roar* | yó:-nx |
| | -(Q)amWx | *be shiny* | yo-ámWx |
| | -i: | *hear* | i-y-í: |
| | -(Q)i: | *feel* | i-yo-í: |

The 'irregular' verb would have to be marked [Label Preceding Morpheme -Vowel Deletion].

A more difficult problem is presented by the i-Epenthesis rule. The rule would have to be amended to allow epenthesis before long consonants unless of course the lengthening rule (103) were rewritten as a gemination rule. These verbs are still positive exceptions to this rule when the prefix is /ʔ-/ since the environment for the application of the rule does not exist and yet the rule (seemingly) applied. One might suggest that rule (103) should be revised to say that any consonant lengthens, including

glottal stop; after applying I-Epenthesis one could apply a rule shortening long glottal stops. I do not know whether clusters arising from prefixing the imperative morpheme to Q-initial stems surface as long or short glottal stops; therefore, the crucial data on this question are missing.

Comparing solutions. The abstract analysis is forced to posit an underlying segment to which it can assign no definite phonetic feature except [-syl]. This solution quite neatly explains some otherwise rather bizarre allomorphy. One problem is that it implies that Q-verbs are regular verbs except for this abstract consonant. We have seen that this is not the case, however, since these verbs must be specially marked so that the rule coalescing prefix vowels (rule (54)) does not apply to them. To avoid abstractness the concrete solution must add several ad hoc features to the verbs and it is not certain that it can adequately handle all of the facts. The proposal raises some questions, nevertheless, that will require further research.

Is the chameleon consonant /w/? Although a synchronic analysis of Seri does not give many clues concerning the phonetic nature of the chameleon consonant, the questioning of a sixty-year-old speaker of Seri revealed that the word k-kí?Wx (< k-Qí?Wx) used to be pronounced kwí?Wx, and tti?Wx used to be pronounced twí?Wx. This evidence suggests that Q is actually /w/. It should be noted that Seri does not have a phoneme w at the taxonomic level.

6. Laterals. The segments l and ɬ (voiceless lateral fricative) merit comment. Words with the voiced lateral are rarely found in contemporary Seri (M. Moser, personal communication) and are typically place names or words in which voiced and voiceless l alternate, the variant with ɬ definitely being more common. At this point we would not know if an earlier contrast has been basically neutralized or if the voiceless lateral originated as a variant of the voiced lateral. The old word lists seem to indicate that the voiceless lateral existed in the late 19th century because the transcriptions waver on the manner in which to transcribe it.

| (106) | Present | McGee | Bartlett | Pinart | Pimentel |
|---|---|---|---|---|---|
| *blue/green* | k-óɬ | kóɬɬ$^{qlh}$ | kovilch | kovüĩX' | kobslh |
| *yellow* | k-máso+ | mossol$^{qt}$ | k'masol | kmassoĩX' | kmozol |
| *black* | k-ó:po+ | kópolt | kopolcht | kopoX'l | jlkopohl |
| *head/hair* | ?a-+ít | a$^{h}$leht | lh'llt | lll'lt | |

Therefore there is no evidence that the voiceless lateral is a contemporary innovation. What is true, however, as native speakers have remarked, is that the almost complete replacement of l by ɬ has occurred within the last two generations.

7. Vowels. With respect to the vowel system, I feel that it is necessary to posit underlying long vowels in contrast with short vowels, but this contrast is found almost exclusively in the environment of stress.[15] (Likewise, vowel clusters are found almost exclusively in the environment of stress.) I will present evidence that these are long vowels and not geminates.

Prefix vowels delete before long vowels, as shown in (107).

(107) po-á:npx → pá:npx *if/when he returns home*
DF-[return home]

Prefix vowels do not delete before short low stem vowels. Instead the stem vowel deletes and the prefix vowel, which takes on the stress of the stem vowel, lengthens.[16]

(108) po-átaχ → pó:taχ *if/when he goes*
DF-go

Certain spell-out rules are sensitive to vowel length. To give but one example, the imperative prefix has an allomorph /k-/ that occurs only before the negative morpheme and before a stem whose initial vowel is a short low vowel, as shown in (109) below.

(109) k-m-ó:kta *Don't leave!*
IMP-NEG-[look at]

k-átaχ *Go!*
IMP-go

k-émen *Winnow it!*
IMP-winnow

Before long low vowels and certain other types of stems the allomorph /ʔ-/ is used.

(110) ʔ-á:l *Do it!*
IMP-do

ʔ-á:ɬl *Carry it away!*
IMP-[carry away]

Some surface occurrences of long vowels are derived from juxtaposed short vowels. One example is the form ká:pχʷɬ *(he) who causes to be brittle.* This is a derived form composed of the causative prefix /-a-/ plus the stem -apχʷɬ *be brittle.*

Long vowels tend to shorten when the primary stress is weakened. Thus pá:npx *if/when he returns home* becomes panpx when the word stress is weakened or lost. Moser and Moser (1965:56) give the example of an idiomatic expression composed of ná:pχa *red-headed buzzard* and -kím *throw at*; the expression is napχa k-kím and means *to have poor luck begging food.* Note that the loss (or reduction) of stress on ná:pχa results in the

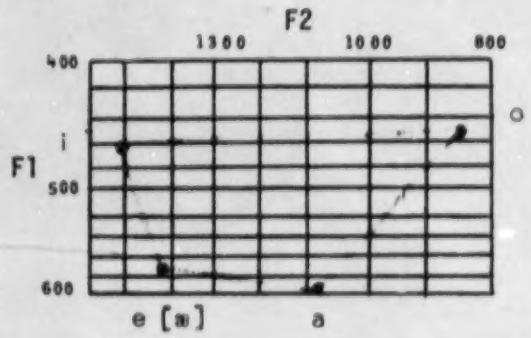
loss of vowel length.

This analysis of the vowels contrasts with that of Moser and Moser (1965: 55) who claimed that "sequences of two and three identical vowels are ... structurally analogous to sequences of diverse vowels" and so did not set up vowel length as phonemic; "long" vowels were analyzed as geminates.

Moser and Moser also claimed that the four vowels "contrast as to high and low and as to front and back (1965:55)." The correctness of this statement has been borne out by the way in which the vowels operate in spell-out and morphophonemic rules. The vowels i, i:, o and o: systematically function as non-low vowels and e, e:, a, and a: as low vowels. An initial study of the acoustic nature of these vowels has yielded the following results (disregarding length):

Average formants

| | F1 | F2 |
|---|---|---|
| i | 464 | 1502 |
| o | 450 | 843 |
| a | 594 | 1089 |
| e | 572 | 1419 |




8. Stress. Primary stress is predictable to a high degree, stress usually falling on the first vowel of the stem. It may be shifted by later rules to prefix vowels, however, as we have seen in (108) above.[15] Some verbs that do not fit into this pattern are the result of the reanalysis of prefix material. For example, there is a verb -kaiɬ *lack (tr.)*. Other transitive verbs may be passivized by adding the passive prefix and then nominalized by the prefix /ʔa-/; for example, ʔa-p-á?it (NOM-PASS-eat) *that which is eaten, food*. The verb -kaiɬ, however, does not have a derived nominalized passive form ʔ-a?-káiɬ as would be expected. Instead a verb meaning *to be lacking* is used: -a?káiɬ. The nominalized form takes the subject nominalizer /k-/: k-a?káiɬ *(that) which is lacking*. Although this form cannot be derived synchronically from -kaiɬ, it is obvious that such was the case historically.

Not all verbs with stress on the second syllable of the stem are so easily analyzed. Compare the following forms.

(111) /-moš́íme/ *be drunk*

/-moképe/ *be sick*

/-motóman/ *be weak*

The significance of the sequence mo- is unknown.

There is more surface irregularity with nouns since many were probably compounds or derived nouns historically.

Moser and Moser (1965:56) claimed that stress was phonemic on the basis of the following type of data. My analysis is given on the right.

(112) ʔípχaɬ *my nephew* /ʔi-apχaɬ/ → ʔi-ápχaɬ → ʔí-pχaɬ

ʔipχáɬ *our flesh* /ʔi-pχaɬ/ → ʔi-pχáɬ

9. Summary. In this paper I have attempted to clarify some of the low-level phonological processes operating in Seri. It has been shown that nasalization and ŋ are generated by some of these rules. I have also suggested that a more abstract source can be found for kʷ, χk and W, and that the chameleon consonant is /w/. Evidence was given for a set of long vowels and the assignment of word stress was discussed. These revisions in the analysis of Seri should make comparative work between Seri and other Hokan languages more accurate just as they have aided in internal reconstruction.

## FOOTNOTES

[1]I am deeply indebted to Mary B. Moser and the late Edward W. Moser for their guidance and encouragement, as well as many of the data on which this paper is based. M. Moser read the manuscript at various stages of preparation and prevented me from making many mistaken assertions; those that remain are my responsibility. I also thank Dr. Margaret Langdon for commenting on early drafts of this paper. Many of the data were taken from Moser 1961, Moser and Moser 1965, Moser and Moser 1976, field notes by Edward and Mary Moser, as well as notes from fieldwork that I did under the auspices of the Summer Institute of Linguistics.

The following abbreviations are used:

| | | | |
|---|---|---|---|
| DECL | declarative clitic | PERF | perfect |
| DF | dependent future | pl, plur, PLUR | plural |
| FUT | future | POSS | possessive |
| IMP | imperative | punct | punctiliar |
| INTER | interrogative | R | referent clitic |
| intr | intransitive | SCP | subject-change-past |
| INTR | intransitive marker | SUB | subject |
| iter | iterative | sg, sing, SING | singular |
| NEG | negative | tr | transitive |
| nom | nominalizer | TR | transitive marker |
| NOM | nominalized | | |

The following brief characterization of the verb morphology may be helpful:

Finite verb forms:

(TR), SUB person, Tense, (NEG), (INTR), (Causative), (Passive), Root, Number/Aspect

Impersonal nominalized verb forms:

NOM, TR, (NEG), (INTR), (Causative), (Passive), Root, Number/, (Clitics)
Aspect

The transitive marker occurs with all nominalized transitive verbs and with finite transitive verbs that have third person subject and object. The intransitive marker occurs with the (nominalized or finite) intransitive form of transitive/intransitive verb pairs regardless of subject or object person.

[2]A lengthened consonant is often 150-230 msecs. long in normal speech; lengthened vowels are 250-350 msecs. in length.

[3]Geminate vowels degeminate when a boundary other than a stem boundary (#) separates them. Sequences of identical vowels, which may occur morpheme internally, are realized as single surface segments, the lengths of which are a total of the individual units.

[4]This restriction on the stressed syllable nucleus is also required for the Vowel Lengthening rule below and the a-Infixation rule. Other similarities in the environments and conditions of these rules suggest that the lengthening of post-stress segments should be handled by a single process. I will not attempt to formulate such a rule, however.

[5]It is worthwhile quoting Moser and Moser (1965:54) concerning the phonetic quality of W:

> /W/ varies from lightly spirant to vocoid articulation.[6] After /k/ in any position or preceding a vowel or /y/, the lip rounding is released rather than sustained: kWšášni [kWᵩášni] *species of plant*.... Elsewhere a variant [o] occurs: kaaW [káaoO] *species of bush*....

Footnote 6 is:

> The distribution of /W/ corresponds, in general, to that of both vowels and consonants.... Interpretation of this segment of /W/ rather than as /O/ yields simpler, more consistent morphophonemics, in that morphemes following /W/ take the shape which follows consonants and not vowels.

An example of the latter is the fact that the declarative clitic is /-ʔa/ following a vowel and /-lʔa/ following a consonant. Notice the following forms: ká:W *seep willow*, ká:Wlʔa *it is a seep willow*. The reader should note that I will be interpreting the "sequence" kW differently than Moser and Moser.

[6]There is no surface segment $x^w$ generated by rule (42) because the sequence xW is apparently never generated by rule (41).

[7]It is obvious that the environment of rule (54) has been written into the environment of rule (55). The two rules might be collapsed as follows:

$$\langle \chi \rangle \begin{matrix} V \\ [+bac \\ -lo] \\ 1 \end{matrix} + \begin{matrix} V \\ [+bac \\ -lo] \\ 2 \end{matrix} \Rightarrow \langle +rd \rangle_1 \begin{bmatrix} +lo \\ -lng \end{bmatrix}_2 \emptyset_3 \; / \; __ \; ]_{V\ intr}$$

[8]According to M. Moser (personal communication) the glide is non-nasal in casual speech and so the following vowels are non-nasal also.

I do not know of any evidence for interpreting kw̃ as the unit kʷ as was done in Moser and Moser 1965.

[9]I am indebted to Bob Reed for making the suggestion that led to this analysis.

[10]A dental nasal becomes an alveolar before [ʂ] and [tʂ] according to Moser and Moser 1965:55. They do not say whether [ɳ] is backed somewhat before [χ] and [χʷ], but I expect that this is the case.

[11]Syncope (41) applies to the singular punctiliar form in the derived verb.

[12]The following verbs have similar meanings; all involve the idea of *think*, with slight differences perhaps: -imoʂ, (pl. -imWk); -Qimoʂ, (pl. -QimWk); -amoʂ, (pl. -amWk). They are obviously related to ʔ-ámoʂ (pl. ʔ-ámWk) *heart*. I am not certain what the implications of these data are.

[13]There are a few unstressed words with long vowels that are exceptions to this generalization: kma:χ *now, then*, and ʔa: *there* are examples.

[14]I do not believe that it is a case of the a assimilating to the prefix vowel because the nominalized forms of the verb undergo deletion as described above, but not lengthening.

/ʔi-Ø-ataχ/ → ʔítaχ *my departure*
1POSS-NOM-go

In order to capture the systematic difference between what is happening in the verbal forms and the nominalized forms, I have chosen to analyze these data as examples of vowel deletion in both cases and vowel lengthening in the verbal forms.

[15]There is a tendency (which I have not studied extensively yet) for o to desyllabify before another vowel; if the o is stressed the stress is shifted to the following vowel.

k-óatWx → [kóatW] ~ [kʁátW] *sweet (eg. punct., nom.)*

ʔánt ʔíʂ-ak iti k-ói: koi → [ʔànt ʔíʂak iti kói: koi] ~ *(they) who*
land this on NOM-live the [ʔànt ʔíʂak iti kʁí: kʁi] *live here*

## REFERENCES

Bartlett, J.R. 1852. Seri vocabulary. Quoted in Hewitt 1898.

Hewitt, J.N.B. 1898. Comparative lexicography. In McGee 1898.

McGee, W.J. 1894. Seri vocabulary. Quoted in Hewitt 1898.

_____. 1898. The Seri Indians. Bureau of American ethnology report 17. Reprinted in 1971 by Rio Grande Press, Glorieta, N.M.

Moser, Edward W. 1961. Number in Seri verbs. University of Pennsylvania, unpublished M.A. thesis.

_____. 1978. In press.

Moser, Edward W. and Mary B. Moser. 1961. Vocabulario seri. Mexico: Instituto Lingüístico de Verano.

_____. 1965. Consonant vowel balance in Seri (Hokan) syllables. Linguistics 16:50-67.

_____. 1976. Seri noun pluralization classes. Hokan studies, ed. by Margaret Langdon and Shirley Silver. The Hague: Mouton.

_____. Unpublished field notes.

Moser, Mary B. 1977. The articles in Seri. 1977 Workpapers of the Summer Institute of Linguistics, University of North Dakota, 21:1-22.

Pimentel. 1875. Lenguas indígenas de México, vol. 2. Mexico. Seri vocabulary from D.A. Tenochio. Quoted in Hewitt 1898.

Pinart, A.L. 1879. Seri vocabulary. Quoted in Hewitt 1898.